February, 1925
Vol. XXXII No. 2
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The American City

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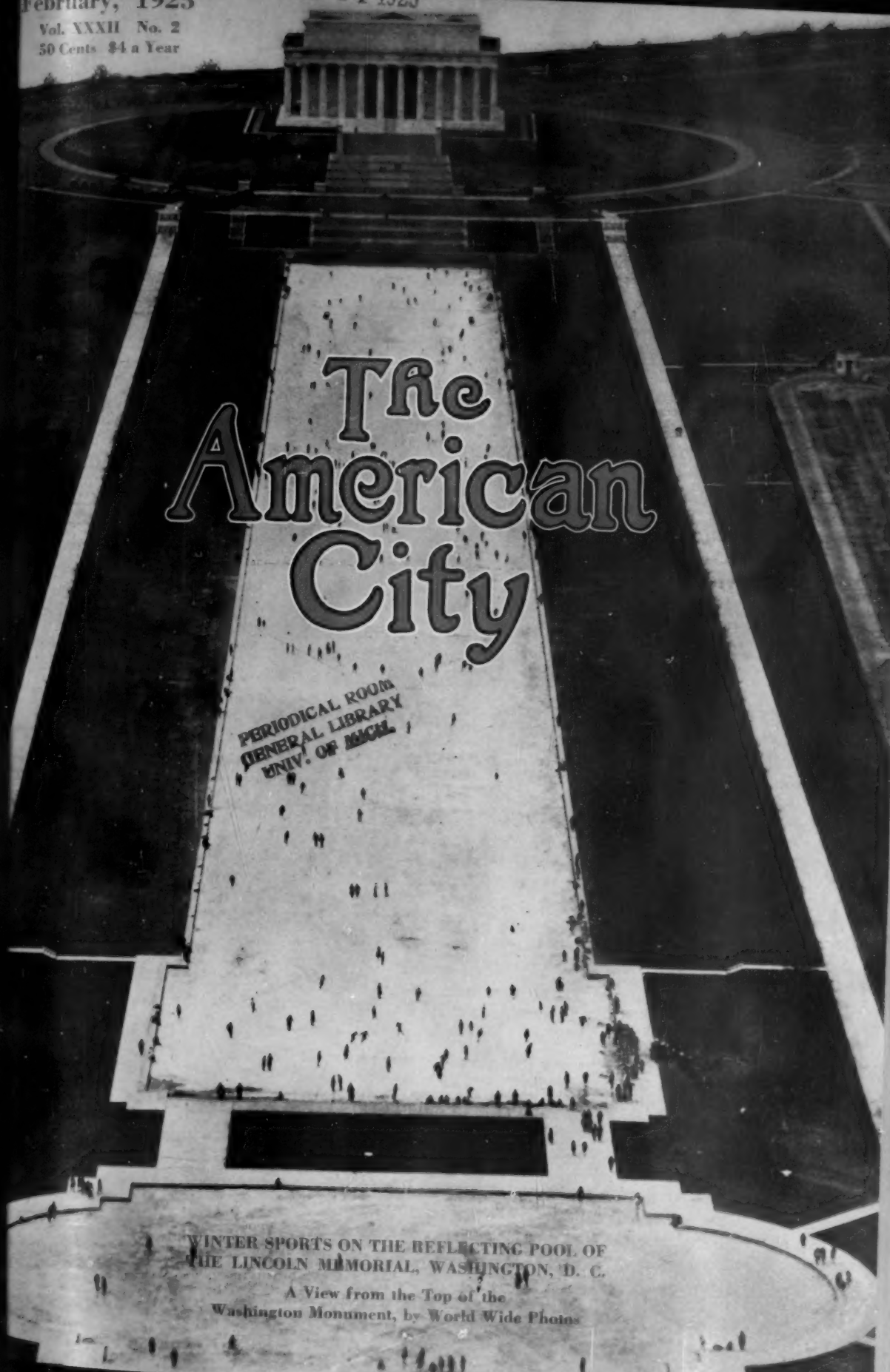


WINTER SPORTS ON THE REFLECTING POOL OF THE LINCOLN MEMORIAL, WASHINGTON, D. C.
A View from the Top of the Washington Monument, by World Wide Photos

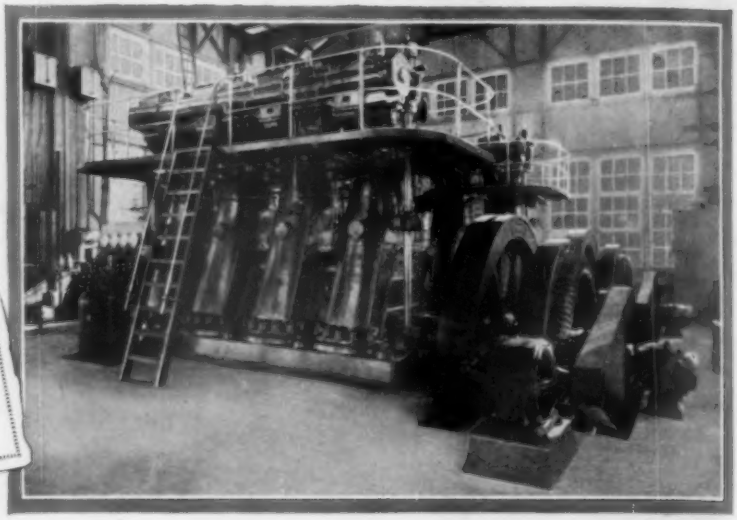
FULTON DIESEL

SALE OF
Public Utility Equipment
FERNANDINA, FLORIDA

STEAM PUMPS

MISCELLANEOUS

R. V. NOLAN
Superintendent Municipal Plant



Two 485-B.H.P. Fulton-Diesel Engines —Fernandina, Fla., Municipal Plant

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VOL. XXXII. No. 2 THE AMERICAN CITY, February, 1925 Price, 50 Cents; $4 a Year
Entered as second-class matter, July 29, 1910, at the Post Office at New York, N. Y., under Act of March 3, 1879
Issued Monthly by The Civic Press, 443 Fourth Ave., New York. Printed in U. S. A.

Vol. XXXII.
No. 2

The American City Magazine

FEBRUARY
1925

443 Fourth Ave.
NEW YORK

50 Cents
$4 a Year

The Use of Excess Condemnation in the Opening and Widening of Streets

THERE is much hope for the spread of rational ideas of municipal development in the increasing attention which engineers and other consultants are giving to the law and economics of city planning. At the annual meeting of the American Society of Civil Engineers, in New York, on January 22, an entire afternoon was devoted by the City Planning Division to papers and discussion on the relationship of excess condemnation to various phases of city planning.

The general subject of "The Present Status of Excess Condemnation in the United States" was presented by Frank B. Williams, attorney-at-law, who conducts the monthly department of Zoning Notes in THE AMERICAN CITY. Explaining that excess condemnation has been defined as the taking by eminent domain (and therefore, without the consent of the owner) of more land than is needed for a public improvement, Mr. Williams said, in part:

"The practical man realizes that the development of the land outside the lines of the given improvement, so as to harmonize with the improvement within them, is essential to the attainment of the maximum usefulness of that improvement. In short, he knows that the outside land—not in fact 'excess'—is needed for the improvement. This the judges in the United States apparently have not been able to realize. The result is that the courts in this country have held as unconstitutional several statutes of excess condemnation, and in a few states constitutional amendments have been passed authorizing it.

"There are two main purposes for which excess condemnation, as it may for convenience be called, can be used with advantage in public enterprises, as follows:

"1. It may be used for the profit to be obtained by the re-sale of the 'excess' land.

"2. It may be used for the purpose of controlling the development of this 'excess' land so that it and the main improvement may best be utilized each in connection with the other, and both render the greatest service to the community.

"A few illustrations may not be out of place. Excess condemnation is usually advocated either for the laying out of a new business street, or the widening of an existing one, in a neighborhood in the center of the city where the present developments are unsuitable or unsanitary and of low value; or for the construction of a thoroughfare in the outlying part of the town where the land is relatively unimproved. In these cases one of three results may occur, as follows:

"First, the neighboring land may be increased in value, in which case it would be good business, if there is sufficient capital and the matter can be handled with skill, to take this land and sell it, to pay in part for the street. Failure to follow this course increases the cost of this and similar enterprises, to the public loss. In this age of keen competition no business could long neglect such incidental economies and escape bankruptcy.

"Second, there may be parts or remnants of lots on one or both sides of the new street which are too small for independent development and which also shut off the land back of the street and, therefore, from proper improvement. If the uniting of the remnant and the land in the rear is left to private initiative, considerable time may elapse during which proper buildings will not be erected on the street, or cheap ones will be constructed, with a loss, in either case, to the city in taxable values and to the community in the lessened economic service of the land and the street. Often the character of a street is in this way permanently lowered, the ugly temporary structures giving it a character which it never afterwards outgrows.

"Third, even if the contiguous land is not cut into remnants, the use to which it is put may lessen the value of the thoroughfare. A boulevard with ugly houses along it is not the beautiful boulevard for which the city has spent its money so freely. A view which the boulevard was planned to exhibit may be cut off by a row of houses, whereas the erection of detached structures, with ample space between, would have left it open and the land would have sold as well if not better. A much-needed industrial street with the adjoining

land cut into small irregular lots is not capable of use for enterprises requiring large sites. The desired conditions may often be obtained by the proper subdivision and planning of the contiguous land, and its re-sale for private use without any legal restriction on it, because conditions suited to the street having once been created, may be relied on, as a rule, to continue. Of course, legal restrictions in favor of the city may be placed on the property if deemed wise; and, when suitable, such restrictions often enhance the value of the property affected, as real estate dealers and owners have found by experience.

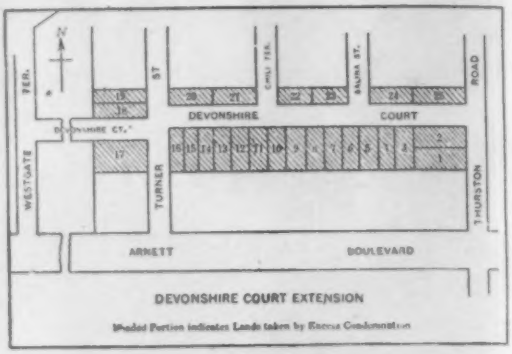
"The thoroughfare is not the only improvement with which excess condemnation may be used; indeed, it may be used as a part of most public works. Thus, a new city hall properly located and constructed will cause neighboring land values to increase; and the public by proper business management could secure the profit which its enterprise has created, condemning and re-selling the land for that purpose. A beautifully designed city hall is not the structure of beauty it should be unless it has an appropriate setting. Often the cheapest and indeed the only feasible way of obtaining some measure of setting is by the control of the architecture of near-by buildings. In similar ways the construction of parks may be made a source of income to offset in part their cost, their beauty and utility being increased by the control of the neighborhood which only excess condemnation will give.

"Excess condemnation, in the modern meaning of the expression, seems to be French in origin, and is to be found in most foreign countries. It has been extensively practiced in England, mostly for the profit that could be recouped to pay in part for the main improvement. It was provided for and considerably used in the state of New York under a statute enacted in 1812, but was held to be unconstitutional by the New York courts in 1834, and virtually ceased to be practiced until revived by statutes in Massachusetts and Ohio in 1904 and subsequently in other states. These statutes were so criticised by the courts that little use was made of them, and constitutional amendments for the purpose were passed, first in Massachusetts (1911), and then in Ohio (1912), Wisconsin (1912), New York (1913), and Rhode Island (1916).

"Excess condemnation has been utilized with success abroad, especially in England. In this country, it has been used comparatively little, in spite of the fact that the need of it, in numberless instances, is clear."

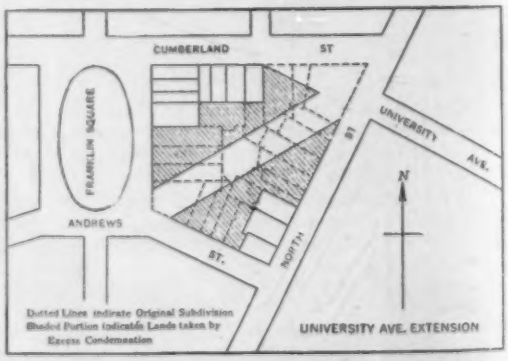
Some Actual Examples

The use of excess condemnation in Rochester, N. Y., was discusssed at the same meeting in a paper presented by Arthur L. Vedder, Deputy Superintendent of City Planning of that city. In 1921 the fact had gained recognition in Rochester that, when street openings, widenings, and extensions are made in developed parts of cities, irregular pieces are often left and the cost of the part taken may be as great as that for the whole lot, the claim being sustained that "the damage to the part remaining equals the value of the whole property." Sometimes the parts of lots left are not sufficient to insure a proper development. Acting, therefore, under the excess condemnation amendment to the state constitution, the city charter of Rochester was amended in 1921 so as to give the city the power "to take more land and property than is needed for actual construction in the laying out, widen-



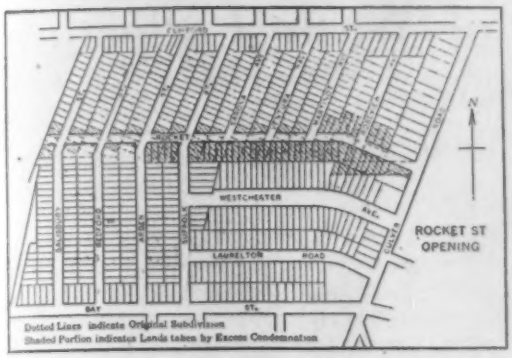
EXAMPLE 1. TO DEVELOP A SECTION IN CONFORMITY WITH A CITY PLAN

In 1919 the municipal authorities made a plan connecting four "dead-end" streets over a tract of vacant farm land in a moderately priced residential section. In 1920, an ordinance opening these streets was passed. The farm was owned by an elderly widow who asked an exorbitant price for the land required for streets, and who desired to subdivide the property in a manner different from that proposed. If the land was to be acquired by condemnation, it was probable that a high price would be awarded by the commissioners. The former ordinance was repealed and, in 1921, the first "excess" ordinance was passed, the land being acquired by negotiation at a rather high price. A subdivision was surveyed and staked, and all but one lot advertised and sold at public auction, according to the provision of the city charter. The price of the property was $17,224; the receipts from sales amounted to $16,750; the lot retained by the city is valued at $2,000; thus making a profit of about $1,500, besides opening the streets as planned without cost. This is the only case which is near consummation and about which a financial statement can be made.



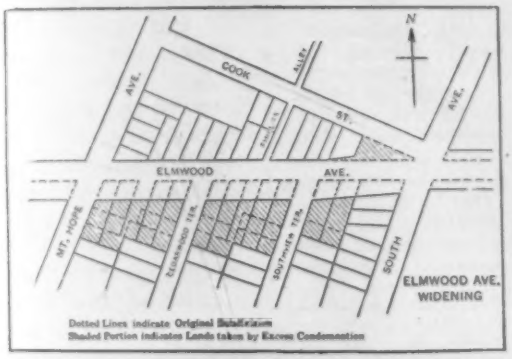
EXAMPLE 2. REDUCING COST OF OPENING

A street, 80 feet wide, connecting two existing streets in the commercial section of the city, was opened. This is part of a plan for a main thoroughfare extending from the extreme eastern to the extreme western limits of the city. This extension crossed lots diagonally and left the parts of lots not taken in an unsalable condition. Sufficient land was taken in excess to make good business sites on the adjoining streets. A new pavement is being laid, after which these business sites will be sold. The surrounding property having doubled in value since the property was purchased, the financial outcome of this transaction does not seem to be in doubt.



EXAMPLE 3. THE REARRANGEMENT OF EXCESS LANDS TO INSURE A BETTER DEVELOPMENT

A secondary thoroughfare was planned through old subdivisions, the lots of which were all separately owned but had not been developed from lack of sewer facilities. This street cut the lots diagonally and intersected "dead-end" streets, which made the use of excess condemnation necessary. A large part of these lands was acquired by condemnation. All the land required has been obtained and a re-subdivision is being planned. As there are several survey adjustments involved, this subdivision will not be completed until later.



EXAMPLE 4. TO REDUCE COST OF WIDENING BY THE USE OF REAR LOTS IN PLACE OF LOTS FRONTING ON THE STREET WIDENED

A section of a street, part of a circumferential boulevard system, was widened from 49½ to 100 feet, all the land being taken off one side. This reduced the depth of the lots fronting on this street sufficiently to make them unfit for later development. The lots were also higher-priced than those fronting on side streets extending off the boulevard in this subdivision. Recourse was again had to excess condemnation, and not only the remainder of the lots fronting on the main thoroughfare, but also sufficient lots fronting on the side streets, were taken to give lots of proper depth. This area has been re-subdivided and staked.

ing, extending or relocating of parks, public places, highways or streets; provided, however, that the additional land and property so taken shall be no more than sufficient to form suitable building sites abutting on such park, public place or street."

Since the securing of this power by the city, ordinances have been adopted by which excess condemnation has been used by the city in numerous instances, four of which are shown in the accompanying illustrations. Mr. Vedder concluded his paper with the following observation:

"A city, by placing restrictions regulating the setback and character of buildings on the land taken, can make 'excess condemnation' of great value in the rearrangement of abutting property when widening, extending or opening streets in the development of the city plan. The increase in price of property caused by the publicity necessary to obtain ordinances makes the cost of land taken by the city higher than if purchased privately. This applies to either negotiations or condemnations. Nevertheless, if used judiciously, 'excess condemnation' is of advantage to the orderly development and rearrangement of a city."

Excess Condemnation vs. Special Assessments

In outlining the comparative value of excess condemnation and special assessments, Mr. Williams said:

"In the United States excess condemnation is not needed, as it is abroad, for the recoupment of expense to be obtained by it; in this country these advantages can be obtained by imposing local assessments on those specially benefited. In some states constitutional provisions forbid betterment assessment entirely or to a considerable extent. These constitutions can be changed, and in other states there are precedents for such amendments that have been tried and found to be sound. In some states the present statutes do not provide, adequately at least, for local assessment. Adequate legislation can be passed, with comparative ease, along lines adopted with success elsewhere. In many states the machinery exists and is constantly in use. Excess condemnation is needed for the harmonious planning and subsequent development of the land within and just outside the lines of the main improvement; and for this there is no substitute for excess condemnation. In this country the law is often the impediment to progress. . . . . It is the so-called practical man who lags behind; and in this, as in so many other matters, the engineer who is at once a theorist and a man of affairs has the privilege and the duty to lead the way and to receive as his reward the satisfaction of knowing that he has performed a public service."

Other Discussions

Others who presented papers or led in the discussion at this session of the American Society of Civil Engineers on excess condemnation included: Frederic H. Fay, consulting engineer, Boston; Charles W. Leavitt,* civil and landscape engineer, New York; Horace H. Sears, consulting engineer and attorney at law, New York, and Frank O. Whitney, consulting engineer, Boston.

In the discussion from the floor, Andrew Wright Crawford, Esq., of Philadelphia, suggested that cities securing land by excess condemnation can assure an architecturally harmonious development of the property when resold, by inserting a provision in the deeds that the architecture of all structures must be approved by the municipal art commission.

* A portion of Mr. Leavitt's paper will be published in the city planning section of THE AMERICAN CITY'S yearbook, the 1925 *Municipal Index*.

Calculating the Cost of Waste Collection

A Study Based on the Use of Tractors and Trailers

By H. W. Howard

IN studying the question of waste collection, the first thing which must be known is the total amount of ashes or garbage which must be collected every day, every week, or every year. These figures are usually easily ascertained from records of previous years. It must be remembered, however, that when the system is improved and therefore more is expected of it, pick-ups will be more frequent and more material will actually be collected than under the former method. Ordinarily, there will be a greater amount of ashes collected in residential districts in winter than in summer and, conversely, there will be more garbage in summer than in winter, because during the summer months more fresh vegetables and fruit are consumed and there is more waste in the form of melon rinds, cabbage leaves, corn husks and the like.

This discussion regarding the method of calculating the cost of collection of garbage and ashes and transporting them to the dump, incinerator, reduction plant or pig farm by the use of tractors and drop-frame trailers equipped with side bodies, has been prepared mainly for the purpose of providing a basis of comparative costs between the tractor and trailer system and any other system a city may now use. In most cases the system consists of teams and wagons.

With the total amount of material to be collected a known quantity, the next thing to determine is the total number of tractors and trailers required to take care of this material. This depends upon several factors. The most important is the length of haul from the center of the city to the point of disposal; another is the number of hours per day during which the equipment is in operation.

Method of Collection

The ordinary method of tractor-trailer waste collection may be described briefly as follows: Horses are used to pull the tractors while pick-ups are being made. This is because of the frequent stops necessary and also because it is cheaper. Inasmuch as a single trailer will not travel over 10 miles per day while material is being picked up, such a small mileage makes truck operation uneconomical.

Collection routes are so laid out in the city that when pick-ups are made, the first-loaded trailers are arranged to meet at a previously determined point. At this point the horses are unhitched from the trailers and a certain number of trailers, usually three, are hitched together in the form of a train. A tractor-truck is coupled to this train of trailers and pulls them to the dump, incinerator, or pig farm, as the case may be. When the tractor-truck leaves, a team of horses is hitched to an empty trailer and the three empty trailers start out collecting material in the next section of the town. When filled, they meet again at another predetermined position. The tractor-truck returning with empty trailers, meets the three loaded trailers, and exchanges the empties for the loaded ones. The tractor-truck proceeds again to the point of disposal, and the trailers pulled by horses pick up from a third section. This process is repeated continuously.

The operating unit consists of one tractor-truck, six trailers, three teams of horses, and the required number of chauffeurs, team drivers and men. There must be enough of these operating units to take care of the entire amount of garbage or ashes, or both, produced in the city in question. Sometimes the tractor-truck can pull four trailers, and in some cases only two trailers, because of hills or road conditions.

In the following discussion, it is assumed that the tractor-truck is strong enough and the grade level enough to make an operating unit of one tractor-truck and six trailers (three to a train) or its equivalent.

Example One

Assume a 4-mile haul, round trip; in other words, 2 miles to the dump and 2 miles back. In this case, time estimates are as follows:

	Minutes
Coupling and uncoupling trains	10
Running to dump, 2 miles at 8 miles per hour	15
Dumping three trailers	6
Returning from dump, 2 miles at 10 miles per hour	12
Total time per trip of tractor-truck	43

These are conservative figures. If the men work well, they can couple and uncouple in

as short a time as 2 minutes instead of 10. Furthermore, a 5-ton tractor-truck is governed to run at 14 miles per hour, whereas in the figures assumed, delays have been taken into account, thereby reducing running time loaded to 8 miles per hour, and light to 10 miles per hour. There are 8 x 60 = 480 minutes in an 8-hour working day, and if it takes 43 minutes for every trip of the tractor-truck, 480 ÷ 43 equals 11 trips which the tractor-truck could make per day. If the tractor-truck hauls three 2½-ton trailers with 3½-cubic-yard dump bodies, it will haul 3 x 2½ x 11 = 115½ cubic yards every 8-hour day.

A study of the figures shows that this example allows just 33 minutes for the team drivers and lifters to fill three trailers with material while the tractor-truck and the other three trailers are away at the dump. This brings up the third important point governing the number of tractor-trucks and trailers required by any city. There is a wide difference between cities in the manner in which householders take care of their ashes and garbage. In some cases this is regulated by city ordinance, and it should be in every case. The length of time to fill any garbage- or ash-hauling body will depend upon many factors, some of which are as follows:

1. Whether the receptacles have to be carried from the cellars or back yards to the curb, or whether they are placed conveniently for the pick-up men in the alley or on the street curb.

2. Whether receptacles are provided for all materials, or whether some have to be shoveled up into the bodies.

3. Whether receptacles are of small size or of such a large size that two men are required to lift them.

4. Whether the separate houses or apartment houses are close together or far apart; in other words, the density of population. If population is very dense, pick-ups will be faster than if the population is sparse.

Experience shows that a team driver and one lifter will easily fill a 3½-yard body on a trailer with ashes in 30 minutes. A trailer crew of one team driver and one lifter is a very satisfactory one, as has been shown by the experience of Indianapolis and other cities, but other combinations are possible. If the haul is shorter that 2 miles to the dump, so that the tractor-truck would be back with empty trailers in less than 33 minutes, it would be advisable to have two lifters instead of one. Perhaps some cases might justify three lifters, but this is doubtful. On the other hand, on a longer haul than 2 miles, it might be possible to get along without any lifter at all, by having the team driver do all the work. It would take a team driver more than an hour to fill a 3½-yard trailer, and this would be possible only if there were no large and heavy cans to be lifted up and dumped into the trailer.

Example Two

In this second example, we suppose a haul of 20 miles round trip, in which case the figures would be as follows:

	Minutes
Coupling and uncoupling trains	10
Running to dump, 10 miles at 8 miles per hour	75
Dumping three trailers	6
Returning 10 miles at 10 miles per hour	60
Total	*151

* 151 minutes, or 2 hours and 31 minutes.

In this case it is apparent that the time the tractor-truck is away is very much greater than necessary for the trailers to be filled by the crew of one team driver and one lifter per trailer. To get around the difficulty, it might seem advisable instead of having a team of horses, one driver and one lifter for each trailer, to have only one team of horses, one driver and one lifter to take care of all three trailers. Under these conditions, as soon as the truck left for its run to the dump with the loaded train, the team would be hooked onto one empty trailer, leaving the other two empty trailers on the street. The first trailer would then make its collection and return to the point where it started. The team would be unhitched, and hitched to the second empty trailer, and another route would be collected. The same with the third. If it took only 30 minutes or so to fill each trailer, all three trailers would be filled in 1 hour and 30 minutes, so the team of horses and the two men would still have about an hour to wait for the truck to return with empty trailers. In spite of this wait, this system would be the most economical that could be devised.

There are, however, other alternatives. Instead of having an operating unit consisting of one tractor-truck and six trailers, the unit might be made up of two tractor-trucks and nine trailers. In this case their operation would be as follows: Tractor-truck A leaves for the dump with loaded trailers 1, 2 and 3. Empty trailers 4, 5 and 6 collect the material. Tractor-truck B returns from dump with empty trailers 7, 8 and 9, picks up loaded trailers 4, 5 and 6 and goes to the dump. Trailers 7, 8 and 9 collect material. Tractor-truck A returns with empty trailers 1, 2 and 3, picks up loaded trailers 7, 8 and 9 and goes

to the dump. Trailers 1, 2 and 3 collect material.

Time studies on this method are exactly the same as in Example Two, given above, but instead of there being 2 hours and 21 minutes for the drivers and lifters to fill trailers, there will be only half of this time, or 1 hour, 10½ minutes, to do the work. In this case it might be possible to operate the trailers by having one team of horses, one driver but no lifter to each trailer while it is picking up. Whether or not it would be cheaper than the combination outlined above, using an operating unit of one tractor-truck and three trailers, can be determined only by figuring up costs upon the entire installation.

Carrying the possibilities further, there could be an operating unit consisting of three tractor trucks and twelve trailers that would operate as follows: Tractor-truck A leaves for dump with loaded trailers 1, 2 and 3 Trailers 4, 5 and 6 collect material. Tractor-truck B returns from dump with empty trailers 7, 8 and 9, picks up loaded trailers 4, 5 and 6 and goes to dump. Trailers 7, 8 and 9 collect the material. Tractor-truck C returns with empty trailers 10, 11 and 12, picks up loaded trailers 7, 8 and 9 goes to dump. Trailers 10, 11 and 12 pick up material. Tractor-truck A returns with empty trailers 1, 2 and 3, picks up loaded trailers 10, 11 and 12 and goes to dump. Trailers 1, 2 and 3 collect material. In this case nine trailers have to be filled while each tractor-truck is away at the dump. The number of men required can be figured out accordingly.

The foregoing discussion of time and speed figures gives a basis for determining the following fact:

1. Number of trailers required
2. Number of tractor-trucks required
3. Number of teams and horses required
4. Number of chauffeurs required
5. Number of team drivers required
6. Number of lifters required
7. Number of miles traveled by tractor-truck per day
8. Number of miles traveled by teams per day
9. Number of miles traveled by trailers per day

Therefore, costs per day or per week or per month of each operating unit or of the total number of operating units used by the city can be figured. The wages of chauffeurs, team drivers and lifters must be determined locally. In addition to these workmen, there will be necessary two helpers riding on the tractor-trailer train, who will assist the chauffeur in coupling up the trailers and dumping the bodies, one man at each dump, one barn boss and perhaps assistants, depending on the size of the installation and the number of horses that are stabled, one or more mechanics for making repairs to tractor-trucks and trailers.

In addition, there will be an inspector, one or more clerks, stenographers, superintendents and the other essential members of any organization. This sounds somewhat indefinite, but it must be remembered that this overhead organization will differ very little, if any, from the organization now handling collection work in the city under consideration. Therefore, these costs are easily determined from records, or if one merely desires to figure the difference in costs between present methods and the tractor-trailer method, these items can be eliminated entirely, inasmuch as they are the same with both methods.

Knowing the number of miles traveled by the tractor-truck per day, it is easily possible to figure the cost of operation, using any good standard cost analysis form.

Depreciation

Depreciation on trailers should be figured in exactly the same manner as depreciation is figured upon the tractors, but it must be borne in mind that the trailers do not run as far per day as the tractor-trucks. It is logical to figure that the trailers depreciate only during that period of time or distance during which they are hauled by the tractor-truck and to neglect the distance which they are hauled by teams, because this hauling is done at very low speed. If this assumption is made, the number of miles traveled per day per trailer will be almost exactly half the distance traveled by the tractor-trucks. The next item is the cost and up-keep of the horses. The method of figuring is similar to that used for figuring trucks. A team of 1,400-pound horses should be used to haul a 2½-ton trailer. Unless the town is very hilly, horses of this weight are heavy enough to stand the work six days per week, because the work of pick-up is not essentially heavy. The trailers are on roller bearings and so are easier to pull than wagons on plain bearings. The horses will probably not have to travel more than 10 miles per day or, at the most, 15 miles per day. They will never pull a full load more than a few hundred feet. Their average load will be a half-load, because they start in when the trailer is empty and they finish their route when the trailer is filled. Local figures can be obtained for the cost of a horse.

The working life of a horse pulling trailers of this kind can safely be assumed as from six to eight years, which gives a basis for figuring interest and depreciation on the investment. Harness for a team will cost about $100 and will last as long as the team itself;

therefore, interest and depreciation upon harness can be figured. There will be also repairs for the harness, but this is a very small item; if figures are unobtainable, they can perhaps be neglected. Each horse will require ¾-bushel of oats, ¾-pound of bran, 20 pounds of hay, and 1/10-barrel of shavings for bedding each day. Local unit prices of these items are obtainable from any feed store. In addition, each horse will need shoeing at least once a month, which will cost not more than $5. There will be other small items which can be grouped under the heading of veterinary services, and which 10 cents per day per horse should cover. The last item consists of rent for garage and stable. A study of local conditions will show what amounts should be charged against this item for either comparative or actual figures.

Unless it is a very small installation, extra equipment will be necessary over and above that figured upon for continuous operation. If the installation is large enough to require ten tractor-trucks, it will perhaps be necessary to have an extra tractor-truck to take the place of those which may be laid up from time to time for repairs. The same applies to trailers, except that one extra trailer should be needed for every twenty needed for continuous use. The same also applies to teams of horses, the ratio of which might be as low as 1 to 6, because a horse must be laid off at intervals to be shod, if for no other purpose. This discussion assumes that the city in question does not have any very steep grades and no long grades of over 5 or 6 per cent. If the grades do exceed 5 or 6 per cent, it does not necessarily mean that the tractor-trailer system of collection cannot be used. For example, the writer recently visited a city the main portion of which was quite hilly but the surroundings reasonably flat. The question of collection of garbage was under consideration and the point of disposal was a pig farm located about ten miles from the city limits. While no exhaustive study was made of conditions, it was suggested tentatively that if the tractor-truck could not haul three loaded tractors up the various grades found within the city limits, they haul only one or two up to the central collecting point at the edge of the town on the road to the pig farm. This central collecting point should be situated just past the last steep grade. At this collecting point the trailers which were hauled through the city singly or in trains of two would be recoupled into trains of three or four and then hauled ten miles to the pig farm, with great economy. This illustration suggests the possibility of getting around unusual conditions. Almost every city has its unusual conditions at some time, and it rests with the official making the survey of requirements to solve each problem separately.

The City's Water-Supply

As Studied by Civics Classes in New York City

I. Things to Do Outside of School:

1. Learn how to replace a washer on a dripping faucet.
2. Test how long a dripping faucet takes to fill up a quart bottle.
3. Actually examine all faucets at home to see if any need new washers. Make a record of leakages stopped.
4. Watch the different uses of water to be observed in a single day:
   a. In your home.
   b. In your neighborhood.
5. If you were going on a hike through the country what precautions would you take with the water you intend drinking?
6. Observe to what uses the hydrants in your neighborhood are put. What action should you take in case you find one that leaks?
7. Clean up yards and see that drains are in order.

II. Things to Do in School:

1. In what condition are the drinking fountains in your school? What can be done to insure better care of the fountains? Put committees in charge of drinking fountains.
2. Bring to class a receipted water bill. What are the two methods whereby New Yorkers pay for the water supplied to them by the city?
3. Draw a map indicating the Croton and Catskill water-supply systems.
4. Draw a diagram of a summer camp showing an ideal location of the water-supply.

III. Reports and Trips:

1. Take a trip to a reservoir or pumping-station and write a report on what you observed. All trips should be supervised.
2. Take a trip to the reservoirs in Central Park, Highland Park, Prospect Park.
3. Take a trip to a pumping-station—as Ridgewood, Manhattan (135th Street), Woodhaven, Jamaica, Newtown.
4. Visit the Museum of Natural History to observe models of reservoirs and filtration plants.
5. Visit the Municipal Building to observe huge models of the Catskill water-supply system.
6. Special report on typhoid fever epidemics that have been traced to drinking water.
7. Observe the different uses of water made by New York City departments and make a report on your observations.
8. Assign a committee to investigate a sprinkler system and make a detailed report to the class.

—Bulletin of High Points in the Work of the High Schools of New York City.

The Schedule Operation of Night Flushers in Philadelphia

By A. M. Soby and J. H. Nuttall
Chief and Principal Assistant Engineer, Bureau of Street Cleaning, Philadelphia

THE area of paved streets in Philadelphia is in excess of 25,000,000 square yards, of which a considerable portion is cleaned daily and the remainder three times weekly, by various cleaning methods. The city extends over 120 square miles of area and is divided into ten districts, each in charge of a district superintendent. All matters in a district relating to the cleaning of the streets and the collection of ashes, rubbish and garbage are under the supervision of the district superintendent.

Each district contains one or more stables, but motor equipment is stored in several garages under the direct supervision of a superintendent of motor vehicles. Service is rendered from a central garage by mechanics in thoroughly equipped service cars. Motor equipment of all kinds, however, when working in a specific district is under the control of the district superintendent.

Machine Broom Gang

The principal instrument of cleaning is the machine broom gang, which is used on all kinds of paving. The machines used are of the standard two-horse-drawn type and have done excellent service in the past. With recent developments of smooth-paved streets, fast-moving motor vehicles, and the elimination of the horse, and the consequent decrease in the amount of dirt, the machine broom does not occupy the important position in cleaning which it once did.

Flushing

It is now necessary on smooth-paved streets to clean no more than a single swath along the curb, as the dirt and litter are driven into the gutter by the traffic. Although a street of this character is apparently clean, there remains an amount of fine dirt upon the surface which is annoying to pedestrians and occupants of vehicles and is pathologically injurious.

Flushing is the best method for the removal of this dirt. If it is possible to remove the dirt and also the heavy litter upon the streets by flushing alone without using the machine broom, a double end has been attained. In Philadelphia it has been found possible to substitute flushers for the machine broom at a decreased cost as well as to provide a greater degree of cleanliness.

Types of Flushers

Philadelphia owns 26 motor-driven flushers, all on 5-ton chassis. This number is entirely too small. In order to utilize this limited number to the greatest advantage, it has been the practice to work all flushers on double shifts within 20 hours per day. On the day shifts they act in the place of machine brooms with cleaning gangs, and they are at the service of the district superintendents for any work they desire when the gang schedule is completed. On the night shift they are employed to clean the principal business streets in the center of the city, the important streets in the sub-business centers, and the main radials and diagonals.

The 26 flushers in service comprise two double-unit Macks, 1,500-gallons capacity, purchased in 1920; 6 single-unit, front-pump drive Macks, 1,500-gallons capacity, purchased 1920; 15 single-unit front pump-drive Packards, 1,500-gallons capacity, purchased 1922; and three single-unit, transmission pump-drive Packards, 1,750 gallons capacity, purchased 1923.

All flushers are governed to 11 miles per hour on high gear. The Macks have three speeds and the Packards have four. The highest speed on third of the Packards and the corresponding second on Macks is approximately 8 miles per hour. The possible high speed will, of course, vary greatly from the foregoing, but in practice it is found that the average speed will be very close to that given.

The flushers obtain water from the ordinary hydrants throughout the city, the normal pressure of the hydrants varying according to altitude, condition of pipe and other factors, but averaging 35 pounds. The cost of water is a small factor in the total cleaning cost, amounting only to 26.67 cents per 1,000 cubic feet, or 1.19 cents per 1,000 square yards, but the number of gallons used is a heavy drain on

the limited water-supply during the summer months.

Upon the assumption of direct control of street cleaning by the municipality three years ago, routes were flushed in the same manner as had previously been done by the contractors, with the idea of gradual organization and improvement. The night flushers were run practically according to the old system during 1921 and 1922. It was realized, however, that the night flushers were not operated as efficiently as might be expected, that routes were unequal, and that the men were undisciplined.

TIME

Lunch	43 min.	
Repairs	17 min.	
Travel	49 min.	
Miscellaneous	11 min.	
		120 min.
Loading		166 min.
Flushing		190 min.
		476 min.
Less lunch		43 min.
Total time worked		433 min.

WORK

Length per shfit	58,202
Area per shift	177,222
Time per mile	18 min.
Length per hour	18,530
Square yards per hour	58,120
Length per working hour	7,483
Area per working hour	24,572

FRONT-DRIVE SINGLE-UNIT 1,500-GALLON FLUSHER IN PHILADELPHIA, OPERATING ON 5 PER CENT GRADE

In the early part of 1923, it was decided to conduct a thorough reorganization of this phase of street cleaning.

Night Routes Analyzed

To this end, an inspector was detailed for observation of the night flushers. He was instructed to meet the flushers at the garage, to remain during the entire shift, to allow the driver to operate as usual, and to record complete details of operation on a form furnished him. This procedure was initiated June 5, 1923, and continued until June 22, 1923, inclusive, during which time the flushing of 13 night routes was observed and recorded. These records were tabulated on a comparison sheet and the result analyzed. The following is an average of work performed on all routes observed:

OPERATION OF 13 NIGHT FLUSHERS

SPEED

2nd—20.55 minutes per mile (2.93 m.p.h)
3rd—13.7 minutes per mile (4.38 m.p.h)

WATER

Loads per shift	31
Time per shift	167 min.
Average load time	6.5 min.
Gallons per foot	.77
Gallons per square yard	.26

The principal objections to third-speed operation are as follows: (1) a flusher operating always on water-covered streets is difficult to control and accidents are frequent; (2) there is an insufficient application of water, causing improper cleaning.

How Defects Were Eliminated

The following conclusions were derived from the study of the records of observation. Routes were found to be poorly devised on the basis of 150,000 square yards in 10 hours, were unequal as to time consumed, and bore no relation to the peculiarities of individual streets and sections. The routes reported by the district offices to the main office as being flushed were not followed by the chauffeurs, and it was accordingly difficult to find the flushers. The chauffeurs did not work the full time of

10 hours for which they were paid. Streets were frequently given an insufficient number of cuts. The flusher speed was too high and delays were too frequent. District supervision had been poor. The operators usually discontinued flushing during rain.

In order to eliminate these defects, the following was decided upon: Routes must be considered individually, allowance being made for street width, number of cuts, quantity of dirt, locality, time of flushing in order to prevent annoyance to pedestrians, and similar considerations. The route should be prepared by the central organization, must be exactly followed by chauffeurs, and must not be changed by the district superintendent without notice to the main office.

All operation should be in second gear, and to prevent higher speeds and to aid supervision a time schedule should be provided. Schedules should specify the number of cuts, the number of nozzles, and the gear, and should eliminate delays caused by idle travel. District supervision must be supplemented by a general inspection of various flushers at irregular intervals.

Chauffeurs should be paid for actual time only for less than nine hours' work, and for ten hours for nine hours or over. In case a route cannot be completed because of delays of any character, the chauffeur must flush as far as is possible within ten hours and must report the occurrence to the district superintendent in order that the route may be finished by the day flusher.

Flushers must work while it is raining, as it is at this time that the most effective flushing can be done; no up-hill flushing, unless necessary by reason of traffic or other conditions. Flushers must repeat where necessary to remove especially heavy dirt. Instructions for flusher drivers should be provided, and all men should be carefully trained before being permitted to take out a flusher.

Adoption of Schedules

In order to devise a schedule on the foregoing basis, it was desired to secure the simplest possible formula of operation. The investigation proved that area, because of varying street widths, is not a true basis for such a formula, but the number of lineal feet traveled would be excellent as a preliminary. Because of the intention to operate in second gear only, the speed factor was narrowed to the varying speed ranges of the various flushers Another factor is the number of nozzles used, the number of cuts being considered, of course, as a multiple of the number of lineal feet.

TWO SINGLE-UNIT 1,750-GALLON FLUSHERS WITH TRANSMISSION DRIVE FOR PUMP

From flushers traveling in second speed only during the investigation, averages were found as follows: speed 2.93 miles per hour, delays 77 minutes, loading 167 minutes, flushing 200 minutes, total 444 minutes, loading average 5.5 minutes, gallons per lineal foot 1.03, gallons per square yard 0.38. From this the following formulæ were adopted for perfect average operation, the number of nozzles being disregarded as practically uniform throughout the shift:

Flushing—50 per cent total time; 16,000 lineal feet per flushing hour; 8,000 lineal feet per total hour
Water—Loading 5.5 minutes; gallons per lineal foot 1.00; gallons per square yards 0.40 (varying)
Area—Varying

On this basis a 9-hour shift would be as follows:

Flushing, 72,000 feet	270 min.
Loading, 48 x 5.5 minutes	264 min.
Delays	6 min.
	540 min.

Laying Out Routes

Since perfect operation is desirable but impossible to secure, routes were laid out varying from 65,000 to 74,000 feet, depending upon the length which it was necessary for the flusher to travel before reaching the route. The routes are also devised to flush certain streets at particular hours, and to provide for observance of traffic regulations by the driver. All routes were designed to be completed in approximately 8 hours and 45 minutes, thus allowing for delays, repairs, traffic and other conditions. In the first district tried, the results were so close as to be startling. Schedules were then placed in operation as completed in each district, each route being tried out before being finally adopted. In all but a few cases where minor changes were made because of observations during the trial of the schedules, the schedules were allowed to stand as originated. After the routes had once been tried out, the supervision of operation was transferred to the district superintendent under the general supervision of an inspector from the main office.

After some time it was found that while the new schedules afforded an efficient method of cleaning, enabling the flushers to be readily found by an inspector, and eliminating property damage and complaint, and placed a check upon the operators, more supervision was necessary, as the operators utilized every expedient to complete the route in less than schedule time. Numerous suspensions and discharges were necessary to instill a better morale among the operators, and this procedure in a short time resulted successfully.

Fixed Nozzles Used

At the close of the flushing season, in the late fall of 1923, arrangements were made to overhaul and paint all flushers before the beginning of the flushing season in the spring of 1924, and this work was completed by that time. Incidentally, the flushers were used in the winter to plow snow, being equipped with detachable plows.

Night flushing was begun in the spring of 1924 on the same basis, minor changes being made on some routes because of conditions arising in the interim. At this time a systematic inspection of the mechanism on leaving and arriving, with a uniform setting of nozzles, was initiated. It has been contended that it is necessary to adjust the position of the nozzle in order to successfully flush streets of varying widths. Our experience has shown that it is possible in practically every case to flush a street of any width with fixed nozzles without splashing the footway, by using two or three nozzles and varying the lateral position of the flusher. The setting of the nozzles by the driver on the street results in great loss of time and considerable injury to the nozzle.

All new drivers reporting at this time were given a thorough course of instruction in their duties before being permitted to assume charge of a flusher, and the accompanying regulations were placed in each flusher frame under celluloid covers.

Results from Schedules

To illustrate the advantages of operating flushers on definite schedules, a comparison of night flushing shows that prior to revision 18 night flushers covered 28 routes, whereas after revision they covered 39 routes. The previous average length of route, 48,890 feet, was increased to 70,194 feet. The average area previously covered, 170,212 square yards, was increased to 212,219 square yards. The previous total daily length of routes, 880,020 feet (166.6 miles), was increased to 1,263,492 feet (239 miles). The former average total daily area of 3,063,816 square yards was enlarged to 3,811,942 square yards, and the old ratio of area to length, 3.48, was decreased to 3.02. The latter was caused by extension of flushing to streets of narrower width not previously flushed.

Additional work on new schedules accounted for an increased length on routes, of 383,472 feet, or 43.4 per cent, which is equivalent to the work of 7.8 additional flushers on the old basis. This represented an increased area of 748,126 square yards. A comparison of time for route schedules with actual trial on 20 routes, showed the following results:

	Schedule	20 Routes
Average time	8 hrs., 34 min.	8 hrs., 42 min.
Average length (per hour)	8,196 feet	8,088 feet
Average area	24,768 sq. yds.	23,704 sq. yds.

With increased familiarity with routes, the figure for time was decreased and the other figures increased.

Comparing the quality of work performed by the 13 flushers prior to revision with that of the 20 flushers after revision, the following facts are disclosed:

	Prior	After
Loads per flusher	29	41
Time per load (minutes)	6.8	5.96
Gallons per flusher	43,981	62,950
Gallons per lineal foot	.77	.90
Gallons per square yard	.26	.32

On the basis of 18 flushers, the total gallonage previously distributed, 791,658, was increased to 1,135,000 gallons, a 43.4 per cent gain.

A summary of actual operation is given below:

Prior to revision, 13 flushers	
Speed 2nd	20.55 minutes per mile (2.93 miles per hour)
Speed 3rd	13.7 minutes per mile (4.38 miles per hour)
After revision, 20 flushers	
Speed 2nd	18.5 minutes per mile (3.24 miles per hour)
Speed 3rd	None

	Prior to Revision Time	After Revision Time
Repairs	17 min.	8.6 min.
Travel	49 min.	19.3 min.
Miscellaneous	11 min.	10.7 min.
Total	77 min.	38.6 min.
Loading	166 min.	244.9 min.
Flushing	190 min.	238.6 min.
	433 min. (7 hours, 13 min.)	522.1 min. (8 hours, 42 min.)

WORK

Length, shift	58,202	69,860
Area, shift	177,222	205,201
Time, mile	18 min.	18.5 min.
Length, total hours	7,483	8,088
Area, total hours	24,572	23,704
Length per flushing hour	18,530	17,694
Area per flushing hour	58,120	51,665

(Length of route in feet, area in square yards)

A comparison of costs for the work performed, using as a basis the average of $21.42 per flusher shift, with depreciation included, showed a reduction of 30 per cent in flushing cost per mile. Previously, 166.6 miles were flushed at $2.32 per mile, whereas after revision 239 miles were flushed at a cost of $1.60 per mile. In terms of area, 3,063,816 square yards were formerly covered, at 12.6 cents per 1,000 square yards, as compared to 3,811,942 square yards at a cost of 10.1 cents per 1,000 square yards, after the revised schedules were in effect.

This definite system of schedules furthermore increased the volume of water distributed per square yard 16.9 per cent, prior distribution being 0.77 gallons per square yard, as compared to 0.90 gallons per square yard under the new schedule system.

INSTRUCTIONS TO FLUSHER DRIVERS

This schedule was accepted after same had been proven practicable after actual test. Time was computed on basis of flushing in second gear. Variances of time greater than ten (10) minutes at any point in schedule will not be tolerated.

No necessity exists for wetting pedestrians or damaging property. Flushing without authorized helper to control valve lever is forbidden.

Do not operate flusher during period of one-half hour after sunset to one-half hour before sunrise without two (2) white lights on front and one (1) red light on rear. Traffic regulations must not be violated.

Accidents shall be reported to 30th and Callowhill Streets by telephone (Preston 1670) immediately after occurrence, and on written form on return to garage. Night service is available and breakages or other mechanical trouble should be reported.

In no case should a disabled flusher be left on the street or in a district yard without authorization from one in charge of service. Absence of drivers without notification to this office in advance will draw suspension, and irregularities in attendance will result in discharge.

Due care shall be exercised in protecting and carrying this schedule on truck while in operation and loss of same or ignorance of provisions contained therein will not excuse violations.

ACKNOWLEDGMENT.—From a recent paper in *Power Wagon*. Illustrations by courtesy of the authors.

Interrelationship of Hospital and Community

ANNOUNCEMENT of the winners in The Modern Hospital Publishing Company's essay contest on "The Interrelationships of Hospital and Community" is made in the current issues of *The Modern Hospital* and *The Nation's Health*, through which the contest was conducted. The prize essay appears in full, together with biographical sketches of the winners, and comments of the committee of award in the February issue of *The Modern Hospital*.

Three awards of $350, $150 and $100, and three honorable mentions were made.

Edward A. Fitzpatrick, Dean of the Graduate College and Educational Director of the Hospital College of Marquette University, Milwaukee, Wis., received the first prize. Second and third prizes went to Dr. Lucius R. Wilson, Assistant Superintendent, Barnes Hospital, St. Louis, Mo., and to Dr. D. L. Richardson, Superintendent, Providence City Hospital, Providence, R. I., respectively.

Honorable mention was given to John R. Howard, Jr., Superintendent, New York Nursery and Child's Hospital, New York; H. J. Southmayd, Assistant Superintendent, Mount Sinai Hospital, Cleveland, Ohio; and Miss Zella Nicolas, R. N., a graduate of the nursing school, Mount Sinai Hospital, New York, N. Y., now a student at Teachers College, Columbia University, New York.

SUGGESTIONS DESIRED FOR THE FIRE CHIEFS' CONVENTION

The Board of Directors of the International Association of Fire Engineers will meet March 19 at 10 A. M. at the Brown Hotel, Louisville, Ky., to arrange for the coming convention. Chief James J. Mulcahy, of Yonkers, N. Y., Secretary of the Association, requests The American City to announce that suggestions are desired from members as to subjects for the program and that communications on this subject should be sent either to the President or to the Secretary, at any time prior to the meeting.

Activated Sludge Treatment, Lodi, Calif.

By L. F. Barzellotti
City Engineer, Lodi, Calif.

THE Lodi sewage disposal plant is of the activated sludge type and consists of a building housing the machinery, four aerating tanks, two clarifying tanks with return channels for the re-aeration of the sludge which settles in the bottom of the clarifiers, a chlorination tank, and a chemical laboratory for the operator or superintendent.

The equipment consists of one Dorr screen to separate products extraneous to the sewage proper, an elevator to remove the screenings, three turbine pumps with a capacity of 1,000 gallons per minute, two air compressors having a capacity of 240 cubic feet of air per minute, run by two 30-horse-power motors, one large air compressor having a capacity of 1,400 cubic feet per minute, run by a 100-horse-power motor, two Dorrco clarifiers, consisting of four arms revolving at the rate of one revolution every ten minutes around the bottom of each clarifying tank and sweeping the accumulated sludge into an outlet provided at the center of the funnel-shaped bottom of the tanks, and a chlorinator for sterilizing the effluent from the tank. The aerating tanks are equipped with removable concrete containers set 4 feet center to center and accommodating the filtros plates, through which air is forced at a pressure of 10 pounds to the square inch into the sewage.

INTERIOR OF POWER-PLANT, LODI, CALIF., SEWAGE WORKS
From left to right are seen the stairs to dry sump and water pump, one of the small air compressors, the 100-horse-power compressor and part of the electric switchboard

Similar containers and filtros plates are provided in the returning channels through which the sludge accumulated in the bottom of the clarifier is taken back to the inlet of the aeration tanks. These plates, 12 inches square and 1 inch thick, are made of porous material which divides the air into a fine spray that works itself through the liquid mass of sewage and keeps it moving continuously.

Plant Capacity Is Double the Present Needs

The capacity of the plant is 2,000,000 gallons daily and is intended to take care of a city having a population of 15,000 to 20,000, or about double the present population of Lodi. The plant cost approximately $130,000. This includes the laboratory and a cottage for the operator or superintendent. The personnel of the plant consists of the operator or superintendent, at a salary of $150 per month with rent, water and light free, and one night man and one day man at a salary of $125 per month each. The power used to run the plant, including the pumping of water from a local well, light and electrical appliances in the laboratory and cottage, averages $6.50 a month.

Chemical and Bacteriological Tests

Aside from the care of the machinery, the main points in the operation of the plant are, first, watching the sludge constantly and wasting its surplus when necessary to make sure that it will not become septic, and, second, watching the effluent and testing its purity three times daily by ascertaining the amount of oxygen dissolved. If the activated sludge becomes inactive, no oxygen will show in the effluent. A good effluent must show between 2 and 4 per cent dissolved oxygen. If oversaturation appears, more air than necessary is used and some of the compressors may be shut

GENERAL VIEW OF LODI SEWAGE TREATMENT PLANT
From left to right are shown the chlorinator, clarifiers, operating tanks, compressed-air mains and the rear of the power-house and laboratory

down. This shows the importance of the regular oxygen-dissolved test, from both a sanitary and an economic point of view.

Once or twice a week bacteria tests are taken by incubating colonies on culture media, and a monthly report showing all of the foregoing data, together with a record of flow, electricity used, percentage of screenings and their moisture, is sent to the State Board of Health, as required by that department.

The sewage was turned into the completed plant on November 5, 1923, and since that date the effluent has always been clear and no trouble has been experienced through any offensive odors. It is interesting to note that this is the first sewage disposal plant in California which has successfully handled cannery refuse.

Clyde F. Smith was the consulting engineer for this plant.

Street Paving in Kitchener, Ontario

By Stanley Shupe
City Engineer

THE topography of Kitchener is undulating to hilly, giving good natural drainage, but in some cases resulting in undesirable steep grades. The maximum on existing roadways is 11 per cent. The highest point in the city is 1,152 feet above sea-level, and the lowest 1,000 feet. There are in the city 12⅝ miles of suburban roadways constructed by the Provincial Government, being portions of the highways to Hamilton, Stratford and Guelph.

Suburban Roads

The Hamilton road was paved in 1922 with concrete, 20 feet wide, 8 inches thick at the center, and 6 inches thick at the side, with no center joint. The subgrade was made flat and the crown formed in the pavement by the extra center thickening. The Stratford road was paved in 1923-24, and the cross-section was changed to 7 inches thick for the center third, gradually thickening to 10 inches at the edge. The center joint was made with corrugated metal with reinforcing bars protruding 3 feet on each side. This joint has been watched with interest and has shown that while it prevented unevenness between the two slabs, a very irregular crack developed, which did not follow the corrugated metal and left an unsightly appearance. Both roads were laid with a 1:1½:3 mix. The Guelph road is still maintained as a good gravel road. The city has been obliged to pay from the general taxes 20 per cent of the cost of these roads, or $60,000 to date. This is the lowest for any of the Ontario cities which pay an amount proportionate to the benefit received.

Concrete Roads in Kitchener

The concrete roads within the city are built of 1:1½:3 mix and are of the one-course type, with joints every 30 feet. In the construction of these roads the subgrade is crowned and the pavement is laid as a uniform 7-inch layer. Six-inch vertical curbs are constructed monolithic with the pavement, and all joints extend through them. No longitudinal joint is made for widths of less than 24 feet, as it is felt that this is not necessary to the construction and its only value is as a traffic marker; also that it is a point of weakness, being more subject to wear than the rest of the pavement. The city pavements are reinforced throughout with 34 pounds expanded metal mesh per 100 square feet.

The Provincial Highway Department has been able to make better use of established road-beds than the city, as the grades are not so permanently fixed in the rural sections; but in a relatively few instances, the city has been able to reshape the old macadam surface by the addition of a very limited amount of material and thereby secure a first-class foundation for the surface course.

Paving Program

Up to 1920 relatively small amounts of permanent pavements had been laid. Since that date a very large program has been followed, taking care of the accumulated requirements of the past and the needs of the growing and progressive community. In 1921, $300,000 was expended on pavements; in 1922, $397,000; in 1923, $134,000, and 1924, $111,000. Ninety per cent of the work in 1921 and 1922 was passed under Section 9 of the Local Improvement Act. Thjs includes the main arteries to the boundaries of the city, although in some cases they were only sparsely built up. In 1923 the City Council decided that, the most necessary work having been accomplished, the remainder should not be constructed except by petition of taxpayers, owing to the fact that the resultant frontage tax is greater than for any other local improvement, with the result that in the last two years only 7 per cent of the rest of the program has been initiated by the Council.

The debenture is usually spread over ten years. One hundred per cent of the improvement is assessable to the land abutting. The local by-law respecting corner lots states that flankages shall be exempt one-half, but that the exemption shall not exceed 60 feet. This exemption, together with a provision of Section 24 of the Local Improvement Act respecting irregular lots and lots unfit for building purposes, as well as the cost for surface drainage and intersections, results in the corporation's paying 20 to 25 per cent of the total cost.

In all, there are 72 miles of city streets in Kitchener, with an additional 8 miles of narrow roadways or lanes. The mileage of the various pavements is as follows: asphalt bitulithic, 3 miles; sheet asphalt, 8½ miles; concrete, 3.75 miles; Tarvia, 8.8 miles, wood block, 0.45 miles; macadam or gravel, 22 miles; dirt, 33.8 miles. The latter figure includes nearly all the lanes and streets in the newer subdivisions, most of which are undeveloped and are not generally known as roadways.

New Construction

Macadam roads have not been constructed for several years, because fast motor traffic sucks out the binder and reduces their life. Gravel, however, is used on new graded streets, or else they become unsatisfactory in the wet season. Such work is done by day labor, which is also used for a portion of the tar roads, but the major paving operations have been let by contract.

New grades are consolidated with a 12-ton roller, but the gravel surface is largely left to be packed by traffic. The ruts are filled in with a road honer from time to time until after the first wet season, when they become a hard surface. Hard-surfaced roadways, not including the more permanent pavements, are protected by an asphaltic mat formed by an application of good road oil two or three times a year. A 50 per cent asphaltic content is specified as being the heaviest which could be applied cold. The supply was purchased this year from the Imperial Oil Company at 11½ cents per imperial gallon f.o.b. Kitchener. Under other circumstances it may be advisable to use a heavier grade for application and covering, but in Kitchener no sand is used, half the street being treated at first, and three days later the other half. Even with this protection, it is occasionally necessary to fill in ruts and depressions; and as it is impractical to leave the new material loose, the patches are made with Tarvia penetration, even on the gravel or macadam roadways. Sometimes the whole roadway is made over. In this case a scarifier is first used and the material applied, graded, rolled and oiled.

Tar and Asphalt Roads

In the construction of penetration tar roads a separate curb and gutter 1:4 mix is first laid, having joints every 12 feet, with a vertical curb face and an 18-inch gutter, showing a depth of 8 inches next the pavement. A compacted depth of 5 inches of 2- to 3½-inch limestone is used for a base and keyed up like the macadam roads. For the surface, 3 inches of 1- to 2-inch trap rock or extra hard limestone is rolled in and bound with 1⅜ imperial gallons of heavy tar per square yard, applied at about 250 degrees Fahrenheit. The surface is further keyed with ¾-inch stone and an additional ½-gallon of tar finely covered with stone screenings. This surfacing is maintained every second or third year with light tar and fine screenings.

In 1913 and 1914 several streets were paved with bitulithic, after which no asphalt was

used until 1921. Since that date by far the largest portion of pavements constructed have been asphalt. The specifications and types used were as follows: business districts and heavy traffic streets, 6-inch concrete base, 3-inch hot mix top; residential districts, 6-inch concrete base, 2¼-inch hot mix top; 5-inch concrete base, 2¼-inch hot mix top; 5-inch macadam base, 3-inch hot mix top.

There are numerous gravel deposits in the Kitchener district, and as the quality is excellent in most cases, the base has been constructed of crushed gravel 1:6, instead of a 1:3:5 mix of screened materials. The quality and grading of the aggregate is frequently tested. After the subgrade is prepared, that is, all connections in, drains laid, etc., the concrete base is laid to extend under the curb. Before the permanent set, the curb and gutter is built on top. Expansion joints are left at the return of all curves either for intersections or for private driveways; otherwise, none are placed. Some temporary cracks do appear, but they are less unsightly than the wider, though straight, predetermined joints and far less in number. It is important to allow the base to stand ten days, not only to acquire strength, but to allow temporary cracks to take place before and not after the asphalt surface is applied. In Galt, sand joints were made at intervals in the concrete base to prevent cracks at a later date, but it is understood that the practice was discontinued, as there was no appreciable difference in the results. The greatest weaknesses of asphalt pavements are conceded to be: (1) slipperiness when in wet condition; and (2) tendency to shove.

The only case of shoving in this city has been in patches where a relatively rich mix was used in the old and less resilient pavement. Minor defects have appeared in the form of cracks which failed to weld together during the summer. They are not numerous or of serious nature and perhaps are not seen except by those interested in pavement construction, but to such they appear as imperfections. The only uncontrollable cause is the rigorous climate. A mix suitable for 100 degrees Fahrenheit in the summer is necessarily too hard at 30 degrees below zero. A 58-63 penetration bitumen has been used, which even on heavy traffic streets has not resulted in shoving or excessive marking in summer, and it is believed that the standard limit of softness recommended by the Asphalt Association and other authorities may safely be raised to the 60-70 class in the new scale for Kitchener for all streets excepting downtown sections. The present specifications are:

Binder Course—	Per Cent
Bitumen soluble in carbon disulphide	5.5
Sand and material passing 10-mesh sieve	24.0
Coarse aggregate retained on 10-mesh sieve	70.5

Surface mixture, bitumen soluble in carbon disulphide	Per Cent 11.0
200-mesh	15
80-mesh	20
40-mesh	29
10-mesh	25

Slight variance necessarily allowed

Standardite Pavements

The Standard Paving Company has constructed most of the asphalt pavements in the city, and, since they have given satisfaction, have been the contractors for several successive years. They have just completed the paving of the new city hall square, where a departure was made in allowing them a freer hand in the method of construction and the privilege of stamping the pavement as Standardite. The name Standardite is not recognized as a patent, but is applied to a patent product and process number 223705. The principal claims for this pavement are that it can be constructed economically owing to the reduced cost of the equipment, the use of less skilled labor and the reasonable price of the materials which are required, resulting in a pavement which has better wearing qualities. The surface or seal coat as specified in the patent is described as ½- to 1-inch thick and having a range of material from impalpable dust to ½-inch stone. For work in Kitchener, however, the range was limited not to exceed ¼-inch in size, and a thickness not less than 1-inch. Another and principal point of the patent is that the lower layer is lightly rolled and the surface course heavily rolled while both layers are still hot enough to be easily manipulated. This practice was followed except at night, when all the lower layer remaining uncovered was heavily rolled, as it would be cold before morning and no compression could be secured. Samples were tested by the Milton Hersey Company, Montreal, showing an average of 5 per cent bitumen in the binder course and in the surface course 10 per cent bitumen and 10 per cent filler, and in both layers a tendency to decrease the coarse aggregate and correspondingly increase the fine aggregate as compared to the city's specifications. Joints are still in evidence marking each day's work, as they have had no opportunity for welding.

The prices paid in the 1924 contract were $2.70 for the 2¼-inch surface and 6-inch base, and $3 a square yard where the surface was increased to 3 inches.

Classifying the Parts of a Contract

By Sturgis H. Thorndike

Fay, Spofford & Thorndike, Consulting Engineers, Boston, Mass.

BOTH in the dictionary, and as commonly used in engineering, the word "contract" has two distinct meanings:

(a) A binding agreement between two parties that each shall do certain things. This meeting of the minds constitutes a fact, but it is a purely mental fact.

(b) A group of documents, frequently including plans, setting forth the agreement and obligations. In themselves these documents are only just so many ounces of matter, inscribed with certain markings.

This distinction may be very sharp. In one meaning a "contract" is an intangible mental conception, in the other certain sheets of written or printed paper. It would save vagueness and even serious misunderstandings as to just what we were trying to express in any specific instance if this distinction were borne in mind each time we use the word.

On the other hand, so clean-cut a distinction seldom exists, in either what we write or what we say; we usually intend both meanings to a greater or less extent. It is true that when we say "That seems to be a fair contract," we may have no reference whatever to the documents and when the printer "prints a contract" he has nothing to do with the mental agreement, but such cases of complete exclusion of one meaning or the other are relatively rare. Study of instances shows that almost always (as in the phrase "the terms of the contract") we refer, in some degree at least, both to the meeting of the minds and to the written record thereof, both to the mental fact and to its physical symbol. It is usually of advantage to use the word "contract" with this mixture or combination of meanings, but at the same time to bear in mind that we are doing so.

Having decided that we wish to assign those two distinct meanings to the word "contract," it seems inadvisable to load it with still other meanings, yet this has been frequently done. In many of the older forms the title "The Contract" was given to one part or section of the contract documents, a section containing the signatures of the two parties and a selection of those clauses which, in somebody's judgment, seemed of special importance. At the same time it was frequently provided that the contract drawings, the specifications, and even other documents, though separate from this section entitled "The Contract," were "part of the contract." As a result, in such forms the word "contract" as used on one line may obviously mean the transaction as a whole and all the documents which embody it, and as used on the next line may as obviously mean one of these documents to the exclusion of the others. Worse yet, in many instances even careful study will leave a doubt whether the reference is to one document, to all the documents, or is perhaps an undefinable mingling of the two references.

Avoid Ambiguities in Contracts

This paper is a plea for care in grouping the matter contained in a contract, and for selecting significant and proper titles for the various documents, headings and subheadings.

Another source of vagueness has been the use of the words "agreement" and "contract," to some extent interchangeably. The person who drew the form may have had in mind some delicate distinction, or he may not; it is not always easy to be certain. Occasion might easily arise when it would be important to know whether "agreement" as used in a specific instance did or did not mean identically the same as "contract."

Take as an example the "Form of Construction Contract" which is one of the "Uniform General Contract Forms" printed in the 1921 "Manual" of the American Railway Engineering Association. This is carefully drawn, the result of painstaking work by a special committee and of extensive discussions at annual meetings of the society, and would easily withstand far severer criticism than is intended here. Yet the distinction between, or identity of, "contract" and "agreement" is far from self-evident, and in this form "agreement" instead of "contract" is the word apparently used with multiple meanings.

The first section is entitled, "A—Agreement" and may be summarized for present purposes as shown at the top of the following page.

THIS AGREEMENT, made this.....
WITNESSETH that.....
The Contractor shall furnish.....and shall .....construct.....in accordance with the plans hereto attached.....and the following general conditions, requirements and specifications, forming part of this contract.
The work covered by this contract shall be commenced .....and in consideration of.....and the fulfillment of all stipulations of this agreement .....the said Company shall pay.....
This agreement shall inure to the benefit of.....
In Witness Whereof, the parties hereto have executed this agreement.....

The next section, similarly summarized, is:

B—General Conditions

1. BOND. The Contractor shall, at the time of the execution and delivery of this contract.....
38. FINAL ESTIMATES.....the whole work provided for in this agreement.....

Take three instances where "agreement" is used above: (1) as the title of A, the first section; (2) as the second word in A; (3) in clause 38 of B. Do (1) and (3) have the same meaning? Probably not. There is apparently a distinction between the specific and the broad meaning of "agreement," (1) referring to A only, while (3) apparently includes at least A and B and perhaps other provisions. Then how about (2)? Does it mean the same as (1), which it immediately follows, or as (3)?

An index to this Standard Form would tell you that the "Agreement" is printed on page so-and-so. You turn to that page and read everything under A; can you assume that you have read the whole of "this agreement"?

Then do "contract" and the broad meaning of "agreement" mean exactly the same, or is there some subtle distinction? The general conditions (B), the specifications, and perhaps the plans, form part of the contract; do they form part of the agreement also? The parties execute the agreement, yet the bond, under B-1, is furnished "at the time of the execution and delivery of this contract."

Any one having responsibilities in connection with a contract may justly feel uneasy when he finds that important words have been thus used with ambiguous and changeable meanings. Serious trouble may have seldom occurred, these points may not have figured in many lawsuits, yet the dangers are there, latent, and should be recognized. Moreover, it is quite easy to so draw contracts as to avoid them.

For example, a contract may be so phrased that the word "contract" always means the entire transaction, including all the contract documents and all the mental agreements set forth in them, while the word "agreement" always means one specific division of the contract. This is done in the "Standard Documents of the American Institute of Architects," which have been approved by many national associations of builders and contractors and are in wide use. There the "Standard Form of Agreement between Contractor and Owner" in Article 4 states the titles of the four divisions of this standard contract and provides "that the General Conditions of the Contract, the Specifications and the Drawings, together with this Agreement, form the Contract."

In any document which starts with such clear definition, the meaning of each of these important words will be exact beyond question, and without variation. When relief is so easy, it seems a pity to continue to carry the burden of the old ambiguities with their possible dangers.

Elements Constituting a Contract

The elements constituting an important construction contract are many, and are widely diverse in character. Many people, concerned with the transaction in widely diverse ways, must give close attention to such a contract, some to certain phases of it and some to others. For instance, the mayor or other administrators of a city must pass on its business advisability, and the city solicitor on its legal aspects; the auditor must safeguard the city's financial interests; the treasurer must know how to account correctly for the various payments; the city engineer will probably need to know it from beginning to end; whoever is in charge of construction, with each of his inspectors, will constantly consult parts of it; and on the side of the contractors, subcontractors, and bonding company, there is an almost equal array of individuals who must deal with it in one or more phases.

A study of the various parts, clauses and provisions of a proposed contract form is worth while in order that a clear conception may be reached of the nature of each particular one, its purposes, the uses to which it will be put, and the various individuals who will be concerned with it. After this is done, the general divisions and subdivisions of the contract can be planned in such a way that each will contain matter similar in nature and in purpose, with the result that the document will be clear, useless repetition will be avoided, and the reference to any particular provision will be natural and easy for every one concerned with that provision.

Before an important contract is let in competition, a number of documents are customarily issued which precede the contract itself; the Advertisement that is published in the press; the Notice to Contractors or Information for Bidders which furnishes the requirements and instructions for making up

bids; the form of Bid or Proposal; and, especially lately, a form of Surety Company's Consent which binds some specified company to become surety for a bidder in case the contract is awarded him. Since these are all preparatory to the contract itself, and are practically superseded by the latter as soon as it is signed, they will not be considered here.

The Bond is sometimes treated as a distinct document, and sometimes as a part of the contract itself. In either case, it differs so widely in nature and in purpose from the other provisions of the contract that consideration of it will also be omitted.

Provisions of Contract Proper

Let us now consider the provisions of the contract itself. A typical construction contract provides that a specified result shall be accomplished within a specified time for specified compensation. The detailed provisions can be classified into two groups (a) construction requirements, dealing with the quantity and the quality of the work and materials; and (b) concomitant provisions which are mainly business and legal.

(a) The quantity of the proposed constructions is usually summarized in written descriptions, general plans, or both, and is stated in greater detail in the Specifications and on the Contract Drawings. As to quality, the Specifications state how the work is to be done, the processes to be used and the standards to be reached; or else they state the results to be obtained.

(b) Apart from these provisions defining the quantity and quality of what is to be constructed, are other requirements. Laws and other public regulations are to be observed, the contractor is to protect the public and the owner against loss from his operations, is to allow the owner and the owner's agents to inspect his work, is to cooperate with other contractors at the site, etc., etc. The terms under which payments are to be made are also established, and provisions made for extension, suspension and abrogation of the contract.

However, this classification into the requirements governing materials and workmanship, as contrasted with the remaining "concomitant" provisions, is unfortunately not the only possible division; a second and different classification, cross-cleaving the first to some extent, deserves consideration for the following reasons. It is desirable that foremen, inspectors and, in fact, all those directly in charge of the work in the shop and field, should actually read and become familiar with every contract requirement which concerns them. This result is difficult to secure with certainty. Such men are usually hustlers, habitually bent on practical results; they may tend to take it for granted that, having done this kind of work many times before, they already know how to do it this time, and need not waste too much energy on literary research, which to them may be a relatively unaccustomed effort. Placing together the requirements which directly concern them may result in their reading them all thoroughly and working in accordance with them; intermingling some of these requirements with a mass of legal and business arrangements which do not concern them may discourage their search, with the result that the contract is not fully carried out. It is therefore desirable to segregate the provisions which directly concern the men in the shop and the field, without distracting their minds with provisions that concern only the men in the office.

Luckily, these two cleavages can usually be easily harmonized, substantially at least. The field and shop men are of course concerned with the plans and with all requirements as to materials and workmanship. Grouping with these latter only a selected few of the "concomitant" provisions, such, for instance, as safeguarding the public by lights and fences and avoiding obstructions to traffic, will usually place before them in compass all the provisions to which they need frequently refer.

A contract drawn this year for a Massachusetts city will illustrate the points under consideration. The work was the removal of the timber floor of a bridge and repairs to its steel work. The various documents appertaining to the contract are as follows:

Advertisement	†
‡ Notice to Bidders	†
‡ Bid	†
‡ Surety Company's Consent	†
‡ Agreement	*
‡ Bond	*
‡ Articles	*
‡ Specifications	*
Contract Drawings	*

‡ Printed in one pamphlet
† Preparatory to contract
* These form the contract

If the Contract Drawings be considered as one document, there are thus nine documents in all, each having its particular use and containing the matter appropriate to that use. The first four of these, namely, the Advertisement, the Notice to Bidders, the Bid, and the Surety Company's Consent, are preparatory to the contract and are practically superseded as soon as the contract is signed. The last five, namely, the Agreement, the Bond, the Articles, the Specifications, and the Contract

Drawings, by the first item in the Agreement constitute the contract. The second to eighth inclusive were printed together in the usual pamplet, copies of which were furnished to the bidders first, other copies were signed as the official contract, and still other copies were used by the contractor and engineer and the foremen and inspectors as guides during the progress of fabrication and construction.

Under this form the Agreement is made as compact as possible. In it any approach either to description or to specification is avoided. It identifies merely. It identifies the date and place of the contract, the party of the first part, the party of the second part, the constituent parts of the contract, the work to be done by the party of the second part (brief identification of the bridge, the repairs to be "in accordance with this contract"), the date of completion, the amount to be paid by the party of the second part (but not the method of payment), and ends by identifying the Contract Drawings as "a set of two drawings marked" (here follows a brief special title, signed by the city's Engineer only) "of which blue-print copies have been received by each of the parties hereto." It is believed that legal force is gained by thus restricting the Agreement to identification, in the most simple and general statements, relying on the other documents (which are equally parts of the contract) for all description, explanation and specification.

The signatures of the two parties bind them to the contract. At the same time, the same signatures acknowledge receipt of authorized and identical contract drawings. The result is that each party, with as little complication as possible, has an exact record of what has been signed.

Note that in such forms each party signs in a single place only; they do not even sign the plans. Note also that the Agreement and the Bond contain the only blanks which are filled in or signed when the contract is executed. The likelihood of omissions, variations, or mistakes is thus reduced, especially if several copies are executed; also, later reference to all long-hand insertions is easier.

Let us pass now to the last and most troublesome classification, that dividing the construction requirements from what have been called the concomitant provisions; or rather, dividing the provisions which concern the "office" from those which concern the "shop and field." In the contract taken as an example, the Articles and the Specifications are divided under the following headings. These are necessarily "catch titles" only, yet perhaps even without the text the content is plain.

ARTICLES (Primarily for "Office" Use)

A. General
B. Definitions
C. Scope of Work
D. Time Requirements
E. Drawings and Specifications
F. Facilities for Inspection
G. Personal Supervision by Contractor
H. If Requirements Not Fulfilled
I. Protection from Claims
J. Protection from Losses
K. Labor and Legal Requirements
L. Additional Work
M. Payment
N. Alterations of Contract
O. Release on Final Payment

SPECIFICATIONS (Primarily for "Shop and Field" Use)

Section I—General Requirements

1. Obligation of Contractor
2. Order of Operations
3. Examination of Materials
4. Delivery of Equipment and Materials
5. Protection of Work and Materials
6. Imperfect Work or Material
7. Lines and Grades
8. Shop Lists, Working Drawings and Piece Marks
9. Contractor to Properly Arrange His Forces
10. Superintendence
11. Skilled Labor
12. Employees
13. Cooperation
14. General Protection
15. Advertising
16. Cleaning Up

Section II—Work to Be Done

17. Character of Work
18. Contract Drawings

Section III—Removal of Existing Work

19. Removal of Timber Work
20. Removal of and Care for Existing Steel Work
21. Restriction of Operations
22. Ownership of Material

Section IV—Metal Work

Clauses 23-28

Section V—Concrete Work, etc.

Clauses 29-32

It is seen that an attempt has been made to group under Articles practically all the legal and business arrangements. When the administrative, legal and financial officials of a city have passed upon this section and those preceding it, they can properly leave to the city engineer the responsibility for the adequacy of the Specifications and Contract Drawings. The Specifications can usually be so drawn that the accounting and auditing departments also will have little occasion to refer to them, when construction bills come in and payments are made.

The Specifications are intended to contain everything, outside the Contract Drawings, with which the hustling practical inspector or contractor's foreman is concerned. Since he need not bother his head about anything else, it is hoped he will really study and become familiar with these throughout.

Sections II and following are unquestionably purely construction requirements; the only No Man's Land is Section I. In Section I are gathered provisions some of which may have business or even legal significance, but which should certainly be known to those responsible

for shop and field work, whether on the part of the city or of the contractor. Moreover, when it is desirable to print a standard form and use it, with typewritten extensions, for a succession of diverse contracts, the printing can be extended through Section I of these Specifications without requiring more alterations there than in preceding parts to meet the special needs of any given contract. Section II and those following will need far more special treatment.

Experience indicates that providing good titles for Articles and for clauses of the Specifications is worth while. If each title is carefully studied out, so that it may instantly convey the idea of what will be found under it, it frequently becomes obvious that matter not really similar in nature or in purpose had unintentionally been placed together, and that regrouping of the provisions is wise. After this regrouping is satisfactorily adjusted, the titles selected furnish a reminder of the basis of this grouping and, when some new provision must be added in writing a later contract, this provision falls into place where it really belongs instead of being huddled in somewhere with dissimilar matter. Moreover, a list of these headings, printed in the Table of Contents of the contract pamphlet, seems to furnish the most satisfactory index; such a list requires no additional work, once the titles have been decided on, and really guides reference more readily and cerainly than do most attempts at a more extended and detailed index.

An abbreviated "catch heading" need not fully cover everything included under it; the object is to select the definite focus around which the ideas are grouped, rather than to give a complete catalog of all of the subsequent ideas.

There is danger latent in any heading, in that discrepancy between what might be interpreted from the heading and what might be interpreted from the text may lead to discussion, and even to legal controversy. This danger is fully recognized. In the contract form here under discussion it is believed to be met by agreeing (the second clause under Article A) that "Headings, letterings and numberings of the various divisions and subdivisions of this contract are intended for convenience of reference only and have no force or effect whatever on the intent of the contract."

ACKNOWLEDGMENT.—A paper presented before the American Society for Municipal Improvements, Boston, Mass.

Purposes of Better Homes Week, May 10-17

THE fourth annual campaign of Better Homes in America, under the leadership of Herbert Hoover, is now moving forward with every indication of exceptional success. Fifteen hundred communities took active parts in Better Homes Week last year, and it is expected that this number will be doubled when the present campaign culminates in a week of nation-wide demonstrations of small houses, which will occur May 10-17, 1925.

Better Homes in America is a non-commercial movement of an educational nature, initiated three and a half years ago, and reorganized late in 1923 with President Coolidge and Secretaries Davis and Work as members of the Advisory Council, and with Secretary Hoover as President of the Board of Directors. Its purpose and aims, as briefly described in the Better Homes Guidebook for 1925, are as follows:

1. To put knowledge of high standards in house-building, home-furnishing and equipment, and home life within the reach of all citizens.

2. To encourage the building of sound, attractive, economical single-family houses in which private home life may be possible; to encourage the reconditioning and remodeling of old houses, and to encourage thrift for home ownership.

3. To encourage general study of the housing problem and of problems of family life, to demonstrate each year the best types of house construction, home-furnishing, and labor-saving devices for homes which are within the reach of families in moderate circumstances.

4. To encourage sensible and appropriate furnishing for the home and the elimination of needless burdens in housekeeping.

5. To encourage instruction in home economics and home life in the public schools and wherever advisable the construction of school practice cottages through which the girls and women of the community may receive continuous instruction in the ways of improving home life, and making household activities easier.

6. To promote the improvement of house lots, yards and neighborhoods.

7. To extend knowledge of the ways and means of making home life more attractive and happier through the development of home music, home play, home art, and the home library, and to encourage special study and discussion of the problem of character building in the home.

Better Homes in America has the cooperation of the government departments of Agriculture, Commerce, Interior and Labor; United States Public Health Service, United States Children's Bureau, American Home Economics Association, Architects Small House Service Bureau, Federation of Farm and Home Bureaus, Chamber of Commerce of the United States, General Federation of Women's Clubs, National Federation of Business and Professional Women's Clubs, American Civic Association, American Child Health Association, National Congress of Parents and Teachers, the American Civic Association, American Red Cross, Girl Scouts of America, Federal Board of Vocational Education, and a score of smaller organizations.

During Better Homes Week local civic and women's clubs and chambers of commerce, the churches and schools lend their support to the campaign. Dr. James Ford is Executive Director, with headquarters at 1653 Pennsylvania Avenue, Washington, D. C.

Forward Steps in City and County

Framing a City Budget to Meet the Wishes of the Citizens

WINTER HAVEN, FLA.—When Winter Haven changed over to the commission-manager form of government in 1924, the Commissioners and City Manager were faced with some difficult problems to solve, both as to the financing of needed public improvements and as to the liquidation of the floating debt inherited from the previous administration. The new charter requires that the municipality operate within appropriations provided for in a budget. Recognizing the importance of having the public *with* the city government as solidly as possible, and desiring that the people take part in the solution of these budget problems, a questionnaire and a letter were prepared and mailed, with a self-addressed envelope, to about 150 influential citizens. The following questions were asked:

Questionnaire Relative to a Financial Policy

As a basis for consideration, it is assumed that one (1.0) mill of assessment will give about $7,500 of tax revenue, whether used for the purpose of paying operating expenses, interest on debt, or reduction of debt (including bonded debt).

ABOUT PUBLIC IMPROVEMENTS

1. Do you consider that the city needs, during 1924, any additional public improvements, such as street lights, white way lights, fire-mains, park improvements, sewer extensions, street paving, street surfacing with clay, sidewalk paving at street intersections, etc.?
2. Which public improvements do you think should be made during 1924?
3. Are you willing to do without any public improvements, except those already started, during 1924, in order that no increase in tax will be necessary on this account?
4. Are you willing to have an increase in your tax rate in order that the city may make the public improvements that you desire and have listed under item (2)?
5. Are you in favor of postponing all additional public improvements until they can be financed by a bond issue?

ABOUT THE FLOATING DEBT

6. The city has a floating debt, the interest on which is costing more than $4,800 during 12 months. Interest *must* be paid, until the debt is paid. Are you willing to have the tax rate added to in order that this floating debt may be reduced annually?
7. Do you prefer to have this floating debt held very much in its present size, until it can be absorbed by a bond issue?

ABOUT OPERATING EXPENSES

8. Do you favor holding that part of the tax rate which provides funds for ordinary operating expenses (not debt charges for principal or interest) at a uniform millage (probably 5 to 6 mills) for a definite term of years (probably 3 years)?
9. Would you be willing to have an increase in the tax rate to improve the service given by any one of the city departments?
10. Which department?

The response was very gratifying, in that more than half of the persons addressed replied, and of these more than three-quarters gave definite affirmative or negative answers. Of the answers, 73 per cent favored additional public improvements immediately; 67 per cent were willing to have an increase in tax rate for public improvements, although 71 per cent were willing to postpone public improvements until they could be financed by bond issue. Only a bare majority (54 per cent) were willing to have the tax rate added to in order to reduce the city's floating debt; 71 per cent preferred having the floating debt carried along until it could be absorbed in a bond issue. The vote in favor of holding that part of the tax rate which provided funds for ordinary operation expenses at a uniform millage for a definite term of years was 81 per cent; but the Commissioners have not yet thought it advisable to adopt definitely a program of this sort.

The returned questionnaires were carefully tabulated, and when the budget for the current fiscal year was drafted it was made to conform as closely as possible to the wishes of the people as thus disclosed. As a result, there has been no serious objection to any item contained in the budget, nor to the tax rate which the budget requirements will make necessary.

P. P. PILCHER,
City Manager.

A Special Index to State Laws Relating to Municipalities

LAWRENCE, KANS.—A distinct service to city officials and others interested in municipal law has been rendered by the League of Kansas Municipalities, through the publication of a special index to statutes relating to cities, for use in connection with the Revised Statutes of Kansas, 1923.*

In the publication of the revised volume of statutes, a great step forward was made by the state in the preparation of its index, this work having been handled by an expert well versed in the proper indexing of comprehensive legal documents. Even with this great improvement, however, the needs of city attorneys, police judges, and other city officials were not completely recognized, in that the cross-indexing between sections and the indexing of the material within sections were not complete. So while the time required in the search for the latest law on a given subject in the 1915 volume has been cut down to a great extent in the revised volume, there is still a great amount of time lost by persons in search of municipal law.

It was with these shortcomings of the general index in mind that the League undertook the compilation of the special index recently published. Through the aid of this volume one may locate all the laws bearing on a given point in a minimum of time and with a minimum of effort.

As the usefulness of such a volume will naturally be impaired by the passing of time and the additions made by the Legislature to the state laws relating to cities, the League expects, after each session of the Legislature, to issue a supplement to this index prepared in such a manner that it can be pasted to one of the blank sheets which have been provided in the back of this volume. Even the binding has been prepared to add to the continued value of the index, and we hope that our efforts in providing a more exhaustive and more specialized digest of those laws which affect

* See department of Municipal and Civic Publications, page 227.

the transaction of the every-day business of the cities of Kansas will be valuable.

Suggestions and criticisms on this volume will be welcomed by the League.

HARVEY WALKER, Assistant Secretary,
League of Kansas Municipalities, Lawrence, Kans.

A Program of Thoroughfare Improvement

COLUMBUS, GA.—A remarkable improvement in the appearance of Broad Street, one of the main thoroughfares of Columbus, has been achieved by a rearrangement of overhead light and power wires. This city's Broad Street is truly broad, having a width of 164 feet. Throughout its entire length it has two one-way drives and a center parkway about fifty feet wide. Unfortunately, through about four blocks in the business section, the trees that once contributed so much to the beauty and dignity of this highway have been either cut down entirely or marred to a great extent, so that the most prominent objects in the line of vision were the previously unattractive poles and overhead wires.

In 1923 a conference was held between the city officials and the Columbus Electric & Power Company at which it was agreed that the trolley wires should be supported by a single line of ornamental steel poles that would carry also the primary power and light circuits. All feeders for customers' services were to be run down the poles and carried underground to the property lines. This scheme has now been completed and the accompanying "before and after" pictures give a good idea of the results. It is now planned to plant a double row of evergreen live-oak trees in the parkway on either side of the street-car tracks, in an effort to relieve the present rather barren appearance.

A particularly noteworthy feature of this project is the economical manner in which the light and power services have been run underground. In small cities the loads are scattered and a complete underground system usually inflicts too great a burden upon the utility companies. The combination used in Columbus, however, gives a very creditable appearance and at the same time is not prohibitive in cost.

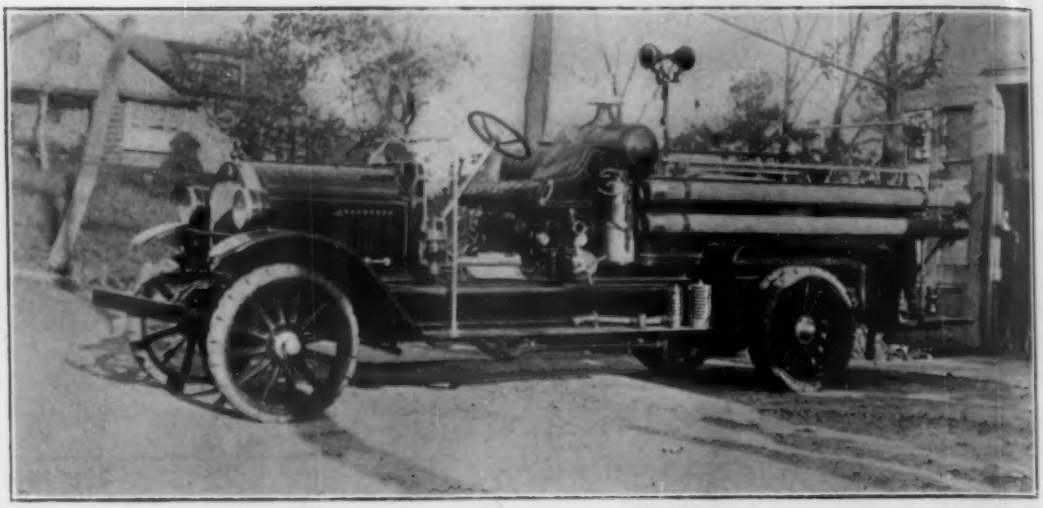
In addition to this Broad Street project, there has been inaugurated a program for the improvement of all thoroughfares in the city through a progressive development of a uniform street-lighting system of modern design. The old system consisted of a combination of arc lamps and small incandescent lamps of varying sizes which had been added from time to time as the city grew. This system not only detracted from the general attractiveness of the streets, but had the further disadvantage of great irregularity in the intensity of illumination.

A thorough investigation of modern street lighting was made, as well as a complete survey of the city, to determine the size of units needed to produce a uniform illumination on all the principal thoroughfares. By using a combination of 600- and 250-candle-power units, with proper reflectors, at a height of 20 feet from the ground and suspended over the center of the roadway, we have acquired an installation that is efficient and also pleasing in appearance. For this work the city has been divided into four sections, and two of these have already been revamped. The remaining sections will be completed during the present year.

WALTER A. RICHARDS,
City Manager.

BROAD STREET, COLUMBUS, GA., BEFORE THE UNSIGHTLY POLES AND OVERHEAD WIRES WERE REMOVED

THE IMPROVED APPEARANCE OF BROAD STREET, COLUMBUS, WITH ORNAMENTAL POLES, AND CUSTOMERS' SERVICES UNDERGROUND



FIRE FLASHER SIGNAL FOR FIRE APPARATUS, IN USE IN ABINGTON, MONTGOMERY COUNTY, PA.

A Visual Signal for Fire Apparatus

JENKINTOWN, PA.—A distinctive warning light for attachment to fire trucks, to visually notify vehicular traffic and pedestrians that apparatus is approaching, was adopted by the Montgomery County Firemen's Association at a recent meeting. With the heavy increase of traffic in cities and boroughs, as well as along suburban and country roads, the need for some means of warning other than the bell or siren now in general use has become a subject of discussion among fire department officials throughout the country. Because of the continuous noise of street traffic, the audible signals freqently fail to give adequate warning, with the result that narrow escapes from injury to autoists and firemen are becoming more frequent, and serious accidents occur from time to time.

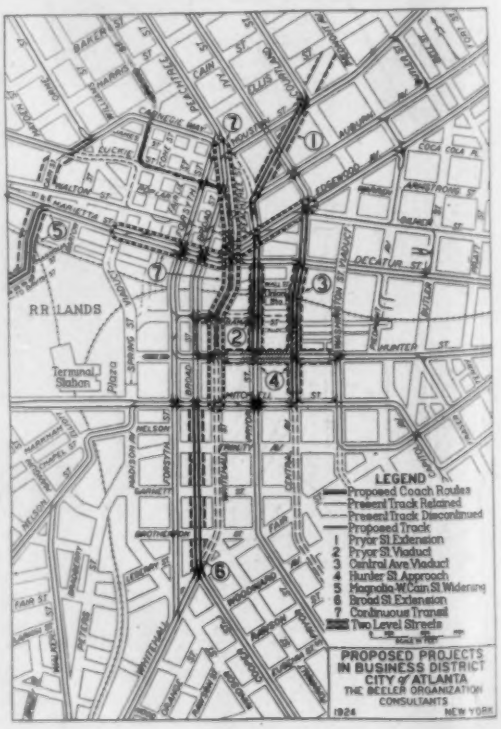
At its annual field day last summer the Association decided to take the initiative in devising a light which would be distinctive, and visible at a considerable distance, and a committee of three was appointed to study the possibilities of the scheme. To the Chairman of the committee, Francis Hall, Jr., of the Roslyn Fire Company No. 1, belongs the credit for the invention of the Fire Flasher light which, after arduous experimenting and many practical tests, has now been perfected and authorized for use on all fire trucks in Montgomery County.

The device consists of a double light made up of two specially designed high-power projectors arranged so as to throw a flashing orange-red light directly ahead and to the rear, thus warning both on-coming and overtaking traffic. The light is raised as high as is practicable on the driving side of the fire truck and in a postion clear of all obstructions. The ray can be seen at a distance of over one mile by night, reflecting on trees and poles, and tests have proved it to be clearly visible even in bright sunlight. The complete apparatus is in one compact unit, including the upright, switch, automatic flashing element, duo-projector, and armored wire. It can be attached simply and quickly to the uprights or ladder framing of any fire apparatus. The current is supplied by the lighting system of the truck, taking power from the generator when the engine is running. Patents on the device, to insure a standard construction, are in process at the present time, and the Fire Flasher will be supplied by the Montgomery County Firemen's Association to any authorized fire company or apparatus in the United States.

WILLIAM T. MULDREW,
President, Montgomery County Firemen's Association.

An Unusual Report on Local Traffic and Transportation Problems

ATLANTA, GA.—In December, 1924, there was submitted to the Special Traction Committee of the city of Atlanta, by the Beeler Organization of



These proposed moving platforms or sidewalks underneath the present sidewalks will virtually be subways without trains. From a stationary sidewalk underneath existing sidewalks, pedestrians will step to a platform moving continuously at a speed of two miles an hour, thence to a platform moving at a speed of four miles an hour, and if a greater speed is desired, to a sidewalk equipped with seats and moving at six miles an hour

New York, an unusually comprehensive and constructive report on local traffic and transportation problems. Although this was originally undertaken as a study of an acute street railway problem, it quickly became apparent that more than a survey of transit was necessary. It was obvious that the city's tardiness in evolving a definite city plan, and the rapid and noteworthy growth in all phases of its life, were the underlying causes of the present acute situation.

Accordingly, the Beeler Organization developed a plan which involves the welding of all the local transportation elements into one comprehensive system and the inauguration of a number of important civic enterprises.

The contents of the report include:

Section 1. Covering a study of Atlanta's growth and development, a description of the railway property, the method of making the survey, a study of the riding habit, past and present, and new transportation demands. Also comparisons of the operating revenue and the cost of operation of each car line; a comparison of this year's operations with those of last year; a comparison of railway operations in Atlanta with those in other cities.

Section 2. Covering the principles involved in routing of car lines, together with a discussion of the present and proposed routing of each line, and the track changes involved.

Section 3. Covering the relocation of car stops, the marking of stopping places; the readjustment of schedules of cars, including the changes in speed, running time, headway, and the number of cars, car-miles, and car-hours required; the introduction of one-man operation with modern cars equipped with safety devices; recommendations for power conservation, and remedying of interruptions of service.

Section 4. Covering a study of competitive transportation, a survey of jitney operations, a comparison of the volume of jitney and railway business, the effect on traffic congestion; a comparison of the service conditions, operating features, length of ride, and rate of fare of the jitney and railway; and a comparison of a coordinated system of transportation with a competitive one.

Section 5. Plans for new de luxe coach routes for immediate installation, with provisions for future extensions.

Section 6. Covering the construction of new viaducts; street openings and widenings; suggestions for the development of close-in territory; regulations for traffic in outlying districts, safety isles and the development of parking regulations.

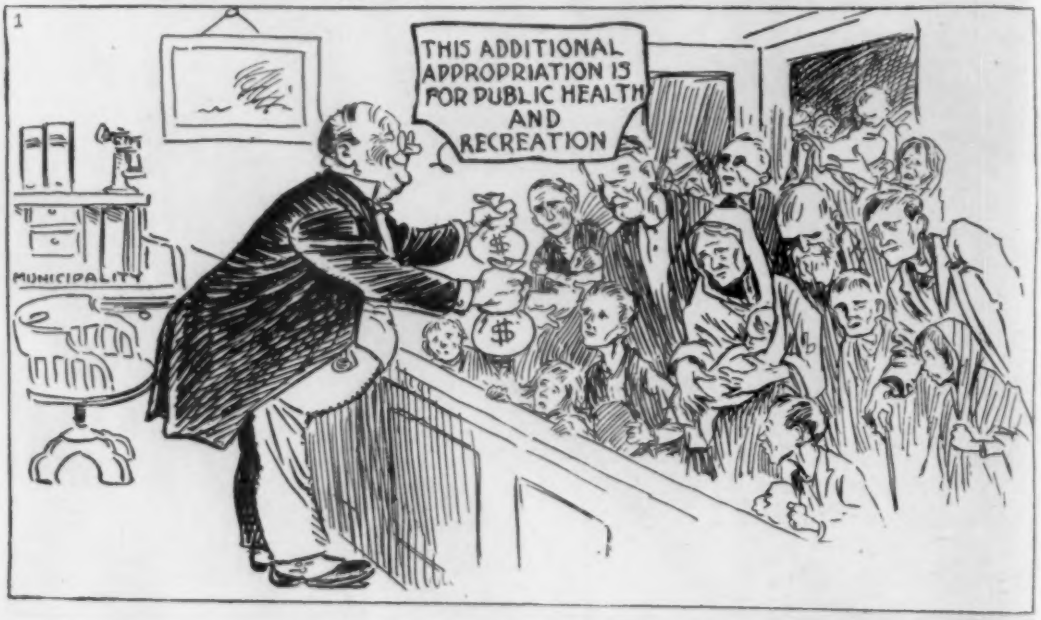
Section 7. A discussion of subsurface moving platforms proposed for Peachtree-Whitehall and Marietta-Edgewood Streets.

Section 8. Covering the financial condition of the railway; new capital requirements; operating savings possible; the value of the railway property; operations under the present and the proposed plans; the rate of fare; provisions for a compensating rate of return, and the time required to consummate improvements.

A copy of the complete report will be sent by the undersigned to any city official requesting it.

JAS. R. BACHMAN, Chairman,
Special Traction Committee.

Municipal Statesmanship in Measures of Prevention:



Will Reduce Future Burdens Such as These:

Cartoon by MORRIS: Protected by George Matthew Adams Service

Enforcement of Traffic Regulations Through a Police Traffic Bureau

Twenty-One Points from a Paper Presented at the December Convention of the National Highway Traffic Association

By Professor Lewis W. McIntyre
Civil Engineering Department, University of Pittsburgh

1. Tradition has placed traffic regulation in the police department. There can be no serious thought of taking it out. Efforts should be confined to the question of improving existing police methods of regulation.

2. The problem concerns not only the automobile. The street car, carrying as it does, *at least*, 75 per cent of the traffic in our congested areas, and the pedestrian, must be given *equal* consideration, and also *equal regulation*.

3. It will take a much greater heed on the part of enforcement officers to the results of scientific studies and solutions to put most of our streets into anything like the measure of usefulness they are capable of.

The Present Problem

Efficiency in street traffic accommodation must be sought in two ways: provision of streets and roadways adapted to the requirements; and the adjustment of traffic to make the best possible use of admittedly inadequate highways, where economic conditions make the betterment of these highways impossible. This problem must be viewed as a whole. Neither must it be considered merely as a problem of providing for the automobile. We must remember that street traffic is of several kinds. We must remember that the street car, however obnoxious it may be to the impatient automobilist, carries at least seventy-five per cent of the traffic in our congested areas. We must remember that the pedestrian is just as important and in greater numbers than the automobilist, and he should be given just as much consideration, and as much regulation.

4. The traffic problem is of an essentially engineering nature. Therefore, while traffic should be directed and controlled on the streets by uniformed traffic officers, the making of regulations, the planning of traffic schemes, and the administration of traffic departments or bureaus should be in the hands of engineers.

5. Traffic control and the enforcement of traffic rules should be in the hands of a special traffic squad reporting either to headquarters, or, in the larger cities, to special traffic subdivisions.

6. It would seem to be an improvement over present methods if the traffic squad was recruited independently of the remainder of the police force and no temporary transfers permitted. The attitude of the traffic officer must be entirely different from that of the patrolman.

7. The chief object of traffic regulation is the *expedition of traffic with safety*, and all provisions of traffic ordinances or their methods of enforcement that aim at objects other than this must be regarded as useless incumbrances.

8. The motto of the traffic bureau should be prevention, not prosecution. We need constructive rather than representative programs.

9. The motorist must be rescued from the "fining squire" and the "speed trap."

10. The successful traffic bureau will regard itself as a traffic-operating bureau rather than a traffic-restraining bureau.

11. The railroad has its restrictions and traffic regulations, which are more strictly enforced than any police traffic regulation. But we don't find the "fining squire" spirit. The spirit of the railroad is quite pronnouncedly the *expedition of traffic with safety*. Traffic bureaus must operate in the same spirit.

12. Violators of traffic regulations are, as a rule, not criminals; they must not be treated as such.

13. The ideal traffic bureau might well have three divisions—the planning, devising or engineering division, the operating or police division, and the traffic court, all under an engineering administrator.

14. Might not the reason we have made little progress in developing the traffic tower along the lines of platoon control, be that we

do not have attached to our traffic bureaus in our large cities such an engineering or traffic planning division as I have suggested?

15. Laws alone will not solve traffic problems. We need more cooperation, common courtesy and common sense on the part of the users of our streets and highways, both vehicle user and pedestrian. Obedience to traffic laws must be made voluntary instead of involuntary. This will come only through campaigns of education, which is a function of the engineering division of the traffic bureau.

16. It takes more than regulation to solve the parking problem. We may yet come to the point of requiring all buildings which are erected to provide within themselves adequate storage space for the automobiles of their tenants or of those who may have business in the building, just as they provide fire-escapes and elevator service to-day.

17. The principal problem of the operating division of the traffic bureau will be the cultivation of the proper attitude of the officer toward his job. This can best be accomplished by the establishment of a traffic officers' training school modeled after the New York school.

18. The establishment of a traffic bureau should not prevent the regular patrolman from assisting traffic in need of aid, or cause him to wink at flagrant violations of the rules.

19. The operating division may quite properly enlist the aid of outside agencies both in the enforcement of the regulations and in acquainting the public with the rules.

20. As a part of the traffic bureau, or in close cooperation with it, there should be established a traffic court, with a salaried magistrate. Such a traffic court is most effective when it is known that the presiding judge is impartial, inflexible and unreachable.

21. The traffic judge should remember that many violations are through ignorance, not wilfulness. He should remember that violations may be decreased through education as well as fines, and should conduct his cases in the spirit of helpfulness to traffic so as to cooperate with the other divisions of the traffic bureau in the *expedition of traffic with safety.*

EDITORIAL NOTE.—A copy of Professor McInytre's complete paper can be obtained from the author, or from the President of the National Highway Traffic Association, Professor Arthur H. Blanchard, University of Michigan, Ann Arbor.

Recent Progress in Citizenship Cooperation in Fire Prevention

WILMINGTON, N. C.—A comprehensive Fire Chief's Cabinet has been created in Wilmington as a result of a visit to that city by the field secretary of the National Fire Protection Association. The Cabinet includes representatives of the city government and of the various sections of New Hanover County, all the civic associations and clubs, the railroads, the schools, the newspapers, etc. Colonel Walker Taylor, a prominent insurance agent, was selected to head the Cabinet; Louis T. Moore, Secretary of the Wilmington Chamber of Commerce, was selected as secretary. One of the first activities of the Cabinet will be in connection with securing an adequate building code. A subcommittee including Chief Charles Schnibben and Robert Scott, Director of Insurance and Safety, Atlantic Coast Line R.R., was appointed to study the building code situation. Chief Schnibben is enthusiastic over the possibilities of the Cabinet and is planning a comprehensive permanent program to make Wilmington fire-safe.

DURHAM, N. C.—A Fire Chief's Cabinet is being formed as a result of a visit to that city by Field Secretary Bugbee and a conference with Deputy State Fire Marshal Sherwood Brockwell, City Manager R. W. Rigsby, Chief Frank W. Bennett and Building Inspector J. T. Still. A definite program of action has been planned by Chief Bennett and Mr. Bugbee, and influential citizens are being selected for service in the Cabinet. The Cabinet plan received the unanimous endorsement of the Executive Council, composed of the President and Secretary of the Chamber of Commerce, Merchants' Association, Woman's Club, Professional Women's Club, Rotary Club, Kiwanis Club, and Lions Club.

PORTSMOUTH, VA.—As a result of a conference held by Field Secretary Bugbee with Chief Alexander and with President Bennett and Secretary Cless of the Portsmouth Chamber of Commerce, a strong Fire Prevention Committee has been appointed by the President of the Chamber. The committee includes representatives of the various interests and organizations in the city. Chief Alexander expects to greatly increase the effectiveness of the work of the Fire Prevention Bureau through the support of this committee.

INDIANAPOLIS.—The activities of the influential Indianapolis Fire Chief's Cabinet have so stimulated interest in private fire protection that 22 new automatic sprinkler equipments were installed in industrial plants and larger retail stores in 1924 and a considerable additional number is already planned for the ensuing months. During 1924 the Indianapolis Water Company installed 167,195 feet of new pipe, of which 50,000 feet was 12-inch or larger. Certain of the worst local fire hazards have been corrected and others are "spotted" by the cabinet for correction in the near future.

—From *News Letters,* National Fire Protection Association.

Advantages of Standardized Assessments

By John A. Zangerle

Auditor of Cuyahoga County, Cleveland, Ohio

AN important question confronting every public appraiser is, whether to value on a uniform or on a particular basis. The appraiser may seek the many conflicting evidences of value of land or buildings, and adopt some safe, sane, conservative, intermediate value; or he may, as it has heretofore usually been done, appraise each site or building on the sales price, irrespective of general values. He may note the sales as they take place and adopt the price as his appraisal. This latter plan involves friction, complaint, dissatisfaction.

Take four corners of a particular street intersection, all of like size and improvement and each worth $5,000 on a certain date. A sells in April at $7,500, B sells for $10,000 in May, C refuses to sell his home, D sells for $12,000 in June. The A parcel is rented at a 10 per cent increase, the B parcel is rented at 100 per cent increase, C retains his home and knows nothing of speculative values or rentals, and the D parcel is occupied by the new owner. These parcels may be appraised on their cost price, viz., $5,000, $7,500, $10,000 and $12,000 respectively. They may be assessed on their income or potential income basis at $5,000 to $12,000. The appraiser may encumber the records with such irreconcilable, distorted, incomparable appraisements, breeding dissatisfaction, complaint, irritation and even anarchy. He may be keeping one parcel on the duplicate at $5,000 which may not have changed hands for forty years, or he may alter his assessment from $5,000 to $7,500 to $12,000 in a single year because it has changed hands at such figures.

On the other hand, he may appraise the land at its present fair selling value and the building on a reproductive, less depreciation, basis. He must compromise boom building and land values with normal values. He should not take the peak value, nor go to the other extreme and accept the low value. The former would do injustice to the owner, while the latter would work an injustice to the state in the loss of taxes.

From any view-point, it is therefore highly desirable that some uniform method of establishing values be adopted and that particularity of appraisement be, so far as possible, eliminated. No greater asset accrues to the appraiser than uniformity in appraisal. Nothing so discourages complaint. On the other hand, from the standpoint of the public, nothing so stimulates resentment, revolution and rebellion as a feeling of discrimination or favoritism in taxation.

The greatest asset of the merchant, manufacturer or real estate owner is his sense of security in the enjoyment of equality of appraisement with his neighbor. His greatest burden is the suspicion that others are getting special consideration. Of what avail is it to the merchant, for example, to be appraised at 90 per cent or to get an abatement of 10 per cent when his competitor is appraised at 80 per cent or gets 20 per cent depreciation? Only in the line of uniformity lies the duty of the appraiser. For tax purposes it matters little whether all property is appraised at 20, 50, 100 or 125 per cent of its true value, but it matters greatly if there is discrimination or even suspicion thereof. The appraiser has an extraordinary opportunity for rendering highly constructive or destructive service to the community and public morals. Wherever possible, therefore, the assessor should classify and standardize real estate, treating similar property alike, to the end that he lose discretion as to the amount of individual assessments, and that the taxpayer's assessment become merged into a general scheme of assessments. Much of the confusion of value is caused by insufficient standardization.

Equalization Before, not After, the Assessment

With proper standardization of assessments, the owner learns that uniformity of methods is applied and individual favoritism is impossible. The taxpayer discovers that things are conducted "on the square." It produces an equalization which is impossible of attainment after an assessment is improperly planned and completed. Equalization of individual properties takes place in the only way possible—before the assessment rather than after.

When it is borne in mind that the value per square foot of a lot 25 feet deep is almost twice that of a lot 100 feet deep and almost three times that of a lot 200 feet deep, it becomes evident that square-foot values are not comparable and that a standard of depth both for capital value and rentals is absolutely necessary. By way of example, let us assume that a lot 100 feet in depth is worth $100 per front foot. This is equivalent to $1 per square foot. Let us assume another lot 200 feet in depth worth $100 per front foot for the standard depth of 100 feet. According to our rule, the value for the entire 200 feet in depth would be $122 per front foot. This would make a value per square foot of approximately 60 cents. (Formula: $122 divided by 200.) Let us now take a lot 25 feet in depth which would be worth $100 per front foot if a standard lot of 100 feet in depth; because the frontage of the lot is worth much more than the rear, the 25 feet would be worth $42 per front foot, which is equivalent to $1.68 per square foot.

Assessment of Property by the Owner

No great and lasting improvement in assessing conditions will be possible so long as an assessor stands alone, unsupported by proper administrative conditions or the pecuniary interest of the taxpayer. The assessor is usually required to assess real estate at 100 per cent of its value. All evidence submitted tends to depress values. All interests seek reductions, abatements, refunders. Not even has he in most cases the funds to hire experts in court to combat other experts hired by taxpayers. How, then, since values are opinion, since large latitude must be allowed in a general re-appraisal, since values for the last few years have been feverish and changeable —how may the assessor hold assessments to present values, themselves uncertain and ephemeral? Each taxpayer should be required to list his real estate as he is required to list his personal property. There should be penalties, of course, to compel his listing at full values.

Such a method of assessing real estate is not as novel as it may seem. A number of states now require the listing of real estate, but fail to provide the necessary penalties to secure results. Hon. Charles A. Bonaparte, former United States Attorney-General, as far back as 1889, in an address delivered before the Landlords' Mutual Protective Association of Baltimore, advised that every owner of real property annually assess such property himself, and that he be obliged to sell it at the price he fixes within a reasonable time, with a right of preemption to the state.

The Commonwealth of Australia has taken an advanced position in this regard. Land is there listed the same as personal property is listed in Ohio. If the commissioner is of the opinion that the owner of any land has undervalued the unimproved value of the land to the extent of 25 per cent or more, the Governor-General may acquire the land on behalf of the Commonwealth for the same estate or interest therein as the owner was entitled to. The proclamation entitles the owner to compensation therefor upon the basis of the improved value obtained by adding the fair value of improvements to the unimproved value stated in the return, together with the amount of 10 per cent upon that improved value, by way of an allowance for compulsory dispossession.

It is further provided under the Australian law that any person who with intent to defraud, in any return, understates the unimproved value of the land shall be guilty of an offense. The penalty is 500 pounds and an amount equal to treble the amount of the taxes which would have been evaded if the value stated in the return had been accepted as the unimproved value of the land; or forfeiture of the land undervalued or any part thereof. Where the value stated in the return is less by 25 per cent or more than the value found by the jury, the value shall be presumed, in the absence of evidence to the contrary, to have been understated with intent to defraud.

Measures to Insure 100 Per Cent Assessments

In New York, the income tax is apportioned to the taxing districts of the state on the basis of real estate assessments, a splendid method of creating public sanction for full real estate assessments which in some taxing districts has worked marvelous support and sanction for 100 per cent assessments. A bond limit law based on aggregate real estate duplicates that really limits the issue of bonds and makes them feel the pinch, has done much for the cause of vigorous assessments. Other measures might be suggested to induce 100 per cent assessments of real estate, such as the following:

First, the taxpayer should not be entitled to recover any greater insurance for the destruction of his building than the value at which it is assessed, and the balance should go to the state.

Second, in any foreclosure suit, after pay-

ment of the liens, the owner should be entitled to the remainder, only up to the assessed value; the balance should go to the state.

Third, in case a corporation or any public body possessing the right of eminent domain, appropriates any property, the owner should not be entitled to recover more than the assessed value.

Fourth, in case of a state increment tax, such as the federal authorities are now collecting, it might be provided that the tax should be levied on the difference between the sales price and the assessed value in the year of purchase.

If constitutional inhibitions confirm the state's impotency to deal with this situation in the manner suggested, perhaps some suitable remedy might be provided to take effect at the death of the owner. The right of succession being purely statutory, it might have a wholesome effect if the state at the death of the owner might acquire the property at the appraised value, as assessed for the general property tax. All of this, of course, sounds harsh and exceedingly drastic. Nevertheless, there is a conflict of interest between state and individual. The state must have its share of taxation, and must distribute the burden equitably. The individual desires to reduce his taxes, so as to increase the capital value of his land. It is to the real interest of the taxpayer, to the security of government and property, that the administration of the law be supported, not only by lip service, but also by laws tending to strengthen this aim for full value assessments.

The Assessor as an Equalizer of Tax Burdens

The efficiency and thoroughness of an assessor's work is measured by the public's appreciation of the difficulties and burdens and also by its estimate of the assessor's qualifications. The assessor should keep his work an open book, his cards placed on the table, so that his troubles may be made the public's concern. The assessor on every possible occasion should indicate that his job is that of the equalization of the tax burden. The increase in the tax burden should not be his object. Indeed, if he will become an advocate for reduction of expenditures, more careful budgeting, less waste and more efficiency not only in other departments but also in his own, he will find a sympathetic ear.

At the present time, the county assessor is frequently held responsible for the high tax burden. Always seeking more money, the tax-spending authorities dodge the responsibility for increased tax bills. They will whisper in the ears of the assessor for an increase of assessments, how badly they need more money, how the schools will have to close and children suffer, how mothers' pensions will cease, how firemen and police will be laid off, how the poorhouse will be poorer—but after the assessor has done his duty, he alone bears the responsibility. The tax spender has escaped. He never justifies tax increases. No friend left for consultation, for sympathy, for support, the assessor alone must justify the inincreased tax burden, where he should be responsible only for the equality of his assessments.

It is a big asset to a community that an assessor be regarded "on the square." To that end, he must show that he is not devoting his energies to boosting small properties while surrendering to the larger interests. If there is any bending over, it must be to get the big fellows, the large interests first. The others then will gladly follow. He must take his own medicine in taxing his own property, paying rather too much than too little. He should never allow a closed door in his office. He should invite the assistance of civic organizations and directors of research wherever they may be of assistance. He should give vent to his ideas upon every possible occasion to the newspapers. He should as far as possible run the office on a non-partisan basis. Any assessment having a partisan basis or flavor must undermine the usefulness of the county assessor.

ACKNOWLEDGMENT.—The foregoing article constitutes Chapter 27, revised by the author, of Mr. Zangerle's book, "Principles of Real Estate Appraising," recently published by the Stanley McMichael Publishing Organization, 1222 Prospect Avenue, Cleveland, Ohio. The book contains 372 pages, has 100 illustrations, and sells for $4.

Village Installs White-Way System

MAMARONECK, N. Y., is the first village in its district to install a white-way system of intensive street lighting. Where formerly 80-candle-power lights were used, modern units with 400-candle-power lamps are now used in the main section, and the village is so well pleased with the results that it is planning to extend the present system.

The installation includes 80 G.E. form 8 units with globe, canopy and dome refractor. They are operated from aerial type IL transformers of 400-600-candle-power size. The lighting units, 110 feet apart, are spaced parallel along the street, which is 60 feet wide. The units are 13 feet, 6 inches above ground, on brackets attached to wooden poles which also carry high-tension lines.

Laying Asphalt on Old Pavements

Seattle, Wash., and New York City Preheat Old Asphalt Streets When Resurfacing

ONE of the greatest problems confronting city officials to-day is the determination of a method of overcoming unsatisfactory, unsanitary and worn-out brick and cobblestone pavements. This kind of pavement was highly satisfactory when laid originally, but the increase in traffic and in load has demanded a pavement of easy traction which will minimize impact and give a sanitary, noiseless surface that is durable. This demand has been met in part by the asphalt pavement, but there remain vast areas of rough and noisy pavements which demand attention.

To renew this old-style pavement has generally necessitated the taking up of the old brick or stone and substituting concrete foundations on which to lay the asphalt. Since there is no market for the old brick and stone blocks and paving material, this procedure has been so expensive that city officials have frequently deferred action. Many cities have taken up the brick and granite blocks and laid them flat, then putting binder and asphalt on top. This, however, has not been a success, as disturbing the block has destroyed the foundation, and the binder does not adhere to the smooth surface of the granite, thus permitting the pavement to creep or to shove. If a binder is not used, the asphaltic sheet is even less satisfactory, for there is not enough weight to hold it in place and it does not adhere to the blocks below.

A method has been developed which has been successfully used in Seattle for resurfacing asphalt or block pavements, and has proved very satisfactory. The present pavements form an excellent foundation, as they have been pounded by heavy traffic for many years and therefore are firm. Upon this foundation an asphalt pavement is carefully laid with its surface adhering firmly to the old pavement, unifying the old foundation and the asphalt top. This is done by cleaning the pavement thoroughly and then heating it gently with a large and continuous blast of heated air from an Equitable heater, a machine especially designed and constructed for this work. Immediately over the heated surface a coat of melted asphalt or other bituminous cement is applied to the surface, adhering to it perfectly, and upon this cement is laid the asphalt pavement.

AN EQUITABLE SURFACE HEATER IN USE IN NEW YORK CITY

Resurfacing Asphalt Streets in Seattle

According to W. D. Burkhuff, Superintendent of Streets and Sewers, Seattle, Wash., the Equitable heater they have used since the spring of 1904 has been operated with diesel oil. On Westlake Avenue, one of the busiest streets, carrying between 20,000 and 25,000 vehicles a day, repairs were carried on without inconveniencing the travel during the work. In all, 16,091.55 square yards of as-

phaltic material was laid at a unit cost of 55.3 cents per square yard. This improvement consisted in heating the surface of the old asphalt streets and resurfacing with asphaltic concrete to a depth of one inch. The actual heating operation cost 13 cents per square yard, and the resurfacing 42.3 cents. The largest yardage laid in one day was 3,038 square yards. The daily yardage heated for one week was as follows:

	Square Yards
May 21	2,276
May 22	2,040
May 23	2,645

(Because of rain, work was not resumed until May 27.)

	Square Yards
May 27	2,297
May 28	2,427
May 29	3,038
	14,723

This has been about the average of the operations the department has carried on. The crews work on an 8-hour basis, the plant and crew working from 7 A.M. to 4 P. M., with an hour off at noon. The wages paid to the working crew are $6.50 for the heater operator, $6 for rakers, and $5 for laborers.

Installation of Gas Engine Centrifugal Pumping Unit at Lexington, Ky.

By L. R. Howson

Alvord, Burdick and Howson, Consulting Engineers, Chicago, Ill.

IN 1920 the Lexington Water Company was confronted with the necessity of installing additional pumping capacity. The equipment then in high-duty service consisted of one 6-million-gallon, one 3-million-gallon, and two 1½-million-gallon Holly Gaskill pumping engines. It was decided to remove one of the 1½-million-gallon pumps and install in its place a 6-million-gallon turbo centrifugal pumping unit.

The installation of the new equipment offered difficulties, in that:

First, an additional unit could not be installed in the existing station building, as there was no space available;

Second, on account of the location of the clear well, boiler-room and a reservoir, any extension of the pump-room would necessarily have been removed at considerable distance from the boiler-room, with the undesirable features attending such a plan; and

Third, the removal of the 1½-million-gallon pump was inadvisable until other pumping capacity was available, as in the event that the 6-million-gallon pump was down for repairs, only 4½ million gallons would have been left, and that capacity is only approximately the average daily pumpage;

Fourth, the replacing of two of the boilers with a larger, higher-pressure water-tube boiler was desired but rendered difficult, because the plant load was such that none of the existing boiler capacity could be spared while the new unit was being installed. Further, space was not available except through the moving of filters and the sacrifice of a much better station arrangement of both boilers and pumps, to permit installing the new boiler while the four old units remained in service.

With these facts in mind, the consulting engineers made an analysis of the situation, and as a result recommended that the best procedure would be the installation of a gas-engine-driven centrifugal pumping unit. Comparison was made of this type with turbo-centrifugal and horizontal cross-compound equipment. All figures were based upon a capacity of 6 million gallons per day against 150-foot head, the normal operating pressure.

The comparison showed that a gas-engine-driven centrifugal could be installed at a cost of approximately $9,000, and that it would be the lowest in annual cost of the three types considered, providing the pump was not operated to exceed approximately thirty days of twenty-four hours each per year.

The turbo centrifugal pumping unit, costing approximately $15,000 installed, would be lowest in annual cost for an operating period of between 30 and 200 days per year.

The horizontal cross-compound pump, costing approximately $40,000 installed, would be the lowest in annual cost if the days operated in the year were in excess of 200.

It was evident from the service to which this unit would be put, considering the equipment then installed and presently to be installed, that this unit would operate only as an emergency, and its principal value would be in the reliability for service during the removal of the 1½-million-gallon pump and the installation of the 6-million-gallon pump.

The installation of the gas engine centrifugal was accordingly recommended for the following reasons:

1. It was lowest in first cost.

2. It was lowest in annual cost, considering the fact that it would be operated only a few days each year at most.

3. This unit could be installed outside of the existing pumping-station in a small house built especially for that purpose at a cost of about a few hundred dollars.

4. The cost of this pump was much less than the cost of alterations to the station, which would have been necessary to accommodate other type of equipment.

5. This unit, being independent of the source of power (that is steam) utilized by all other equipment in the station, offers an exceedingly valuable emergency or standby unit from the fire-protection standpoint.

W. S. Cramer, Past President of the American Water Works Association, is Chief Engineer of the Lexington Water Company. Alvord, Burdick & Howson, of Chicago, are consulting engineers to the company.

The pumping equipment purchased consists of a 300-h.p. Sterling gas engine running at approximately 1,250 r.p.m., direct-connected to a Cameron centrifugal pump.

The Development of Street-Lighting Systems

Business Flows to the Best-lighted City or District

By L. A. S. Wood

STREET lighting in American cities closely followed the development of the whale oil industry, and whale oil became the principal source of illumination until displaced by mineral oil or natural gas in the early part of the 19th century. In 1879 the electric arc lamp made its first appearance on the streets, and from that time forward street lighting became a recognized municipal function. Such lighting was purely utilitarian, however, and generally resolved itself into the suspension of arc lamps at street intersections. The lighting systems were usually installed by public utility companies and maintained by them under contract with the municipality. Until the advent of the automobile this class of street lighting, which Dr. Charles P. Steinmetz characterized as "distributed darkness," was sufficient for its purpose and served to illuminate street crossings and define roadways. Modern traffic conditions, however, call for higher intensity of illumination and for systems which will not only light the street by night, but also be attractive by day.

From a simple problem, street lighting became one of the most complex facing the municipality, involving not only a study of the units, but also a very complete study of methods by which the system may be financed. Owing to the higher cost of the so-called ornamental street-lighting systems and the fact that street-lighting rates are more or less a fixed quantity, central stations ceased to take an active part in the promotion of modern street-lighting systems, and the burden fell on the shoulders of progressive citizens. White ways designed to benefit some particular locality were promoted by enterprising merchants, and as a result heterogeneous collections of more or less efficient and artistic street-lighting units became common. With a realization of the undesirable character of many of these installations, municipal officials appreciated the necessity of exercising supervision over white way installations and of unifying them into a comprehensive plan of city zoning. This action, however, did not solve the question of financing, and there is still a divergence of opinion among experts as to the best method.

Since central stations in many cases cannot or are unwilling to undertake the financing of modern ornamental street-lighting systems, it would appear that this problem may be handled by the municipality's designing a comprehensive street-lighting system covering the entire city and one which may be extended to new systems as they are developed without materially disturbing the existing system. Suitable types of ornamental posts and equipment should be selected for various classes of streets and made standard throughout the city. In this way a flexible, well-balanced system may be designed which can be installed gradually as the necessary funds are provided.

Ownership and Financing

Municipalities should own the street-lighting units and the underground distribution

NIGHT VIEW OF CAPPELAN MEMORIAL BRIDGE, MINNEAPOLIS, SHOWING TROLLEY BRACKETS, OCTAGONAL LANTERNS AND BI-LUX REFRACTORS

systems and either purchase current in bulk from the public utility company, undertaking the maintenance of the systems themselves, or purchase current and maintenance from the public utility company. In this way the municipality is in complete control of the situation and can improve its system and increase the size of the units at will. It should be recognized that the initial cost of maintenance, exclusive of current, of a modern street-lighting system varies but little with the size of the unit, and that since current is the smallest part of the maintenance cost, the city with an arrangement as outlined above can readily increase its street-lighting intensity as occasion requires, without seriously increasing its annual maintenance expense.

Funds for financing street-lighting installations may be provided by bond issues, by assessment of abutting property, or by voluntary subscription by the merchants in the district to be improved. If these methods are not possible, arrangements may be made with the public utility company to finance the installation and charge it off in the lighting rate on a long-term contract.

In addition to designing a comprehensive street-lighting system, a municipality is responsible to the public for its adequate maintenance. As a legacy from the early days, city administrations generally keep a record of outages in order to collect penalties imposed under the terms of the street-lighting contract, although, with modern street-lighting equipment, total outages are comparatively few. Semi-outages, caused by dirty glassware or blackened lamps, generally pass unobserved, even though such outages have a greater effect on the efficiency and appearance of a street-lighting system than actual outages. In considering maintenance charges on a street-lighting system, sufficient funds should be provided for frequent cleaning of glassware and lamps.

Intensity

It is now generally recognized that modern traffic conditions require a high intensity of illumination in street lighting; and since a high intensity means more and larger units, it is desirable that municipal officials when designing a street-lighting system should take advantage of the latest developments in light control and adopt the most efficient method. This involves the study of the various types of glassware, lamp sizes and standards which are available to-day.

The city with the best-lighted business and residential streets is bound to attract the largest number of new property owners and new customers for its business houses. This has been demonstrated time and again in small communities, in middle-sized cities, and in the individual districts of our largest cities. It is true everywhere that business follows light.

The President's Estimate of Public Health

Public health lies at the foundation, the very foundation of all human welfare. Unless that is conserved and protected, there is very little use in any other activity for the promotion of public welfare.—*Calvin Coolidge.*

Civic Activities of American Legion Posts

An Abandoned Cemetery Transformed into a Memorial Park

VAN WERT, OHIO.—By transforming an abandoned cemetery on the Lincoln Highway, Van Wert, Ohio, into a beautiful park dedicated to the memory of the soldiers of the late World War, the members of the Isaac Van Wert Post of the American Legion have solved a much-debated problem for their community. The story of how they attained the fine results evident from the accompanying "before and after" pictures is told in a recent issue of *The American Legion Weekly*.

Thirty years before the first of these views was taken, the last burial was made in this cemetery. Since that time weeds and grass, growing at random, have gradually made the spot more and more unsightly, and the question of restoring the tract has been the subject of discussion for many years. Believing that the time had come for some real action, the local post of the Legion last winter secured the authority to undertake the task of restoration. Its first step was to announce through the local newspapers that the site of the old cemetery would be made into a memorial park, and that the bodies of those buried there would be moved, on request of relatives, to a new cemetery. Following the publication of this notice, many bodies were transferred, and in February of this year the members of the post assembled to start the actual work. In spite of a heavy snow-storm at the time, they removed all the headstones and monuments. When spring came, the men cut down all dead trees, dug up the roots, and plowed and harrowed the tract. Grass seeds were then planted and, favored by damp weather, a fine lawn grew quickly.

THE CEMETERY THAT TURNED PARK

THE AMERICAN LEGION POST IN VAN WERT, OHIO, TRANSFORMED THE ABANDONED CEMETERY INTO THIS BEAUTIFUL MEMORIAL PARK

The transformation of the cemetery into a park was completed by the making of graveled walks, for which the France Stone Company, of Toledo, Ohio, donated 300 tons of crushed gravel. The Fort Wayne, Van Wert, and Lima Traction Company assisted by hauling the gravel free of charge. The cost of the entire project was $1,300, the greater part of which was obtained through a home-talent show given by the Legion, and the balance contributed by local citizens.

Many other local organiza-

tions have since joined with the Legion in developing the beauty of the park, and its attractive appearance during the summer of 1924 surpassed the hopes of those who had planned the park. Through the Nature Study Club of Van Wert, a fund of $500 was raised to provide forty-four new trees for the park, one in memory of each man from the community who lost his life in the late war.

CLOQUET, MINN., AFTER THE FIRE OF OCTOBER, 1918

THE TOWN OF CLOQUET HAS BEEN REBUILT LARGELY THROUGH THE EFFORTS OF THE LOCAL AMERICAN LEGION POST

Helping the Rebuilding of a Fire-swept Village

CLOQUET, MINN.—One of the fine records of community service rendered by local posts of the American Legion that have come to light through the statewide community service contest conducted a short time ago by the Minnesota Department of the Legion is that of the post at Cloquet, Minn., of which an account appeared recently in *The American Legion Weekly*.

To help in the rehabilitation of their home town, which had been completely destroyed by a forest fire in October, 1918, was the task that confronted the members of the Cloquet post when they organized as Legionnaires in 1919 upon their return from service. Their first step was one of preparedness against a possible recurrence of the previous year's disaster. They organized a fire patrol reserve, so that should the woods surrounding the community again become kindled, the post could mobilize quickly and take its place in the front line of the fire fighters under the direction of the forest rangers. Other projects designed to lessen the fire danger were under way and to these the post gave its full support.

Realizing that the erection of homes and commercial buildings came first in the needs of the community, plans for a club-house such as the post hopes eventually to have were set aside for the time being. A post building fund was started, however, and this grew rapidly through individual contributions and the various money-making activities of the members. The entire amount was then invested in first mortgage bonds on Cloquet real estate, thus making the money available for the rebuilding of the town. At such time as the mortgages are paid off, the fund will be used to finance the construction of the club-house, which will serve as a war memorial.

Throughout the long program of rebuilding which achieved the transformation so clearly shown by the two accompanying illustrations, the Legionnaires cooperated in every way possible, and the honorable mention which their efforts received in the community service contest was fully deserved.

County Jails For Sale

An editorial in the Philadelphia *North American*, under this caption, notes the fact that the county jail at Lowell, Mass., was recently sold at auction, and that those at Taunton, Fitchburg and Newburyport are to be sold shortly, while at Fall River the building formerly used for this purpose has been transformed into a public relief station. The buildings are sold not because of need of larger or more modern ones, but for lack of inmates. The authorities explain the condition by pointing to the probation and parole law in effect since 1878.—*City Club News*, Philadelphia.

A New England City's Civic and Social Welfare Exhibit

By Arthur Dunham

Executive Secretary, Newton Central Council, Newtonville, Mass.

TWENTY-ONE welfare and civic organizations of the city of Newton, Mass., participated in a dramatic and graphic exhibition of their work in connection with the first All-Newton Community Welfare Conference, held on October 16, 1924.

Newton is a suburban residential city of about 48,000 people, just outside of Boston. The city is composed of eleven distinct local communities or "villages," and because of the geographical situation, the promotion of city-wide projects is attended with unusual difficulties. The Community Welfare Conference was held under the auspices of the Newton Central Council. The Council is a non-financial community federation which includes not only most of the active social and health agencies of the city but also such civic organizations as the Chamber of Commerce, Federation of Women's Clubs, American Legion, and several Village Improvement Associations.

The Community Welfare Conference was preceded by two days of automobile "Come-and-See Tours" to various welfare institutions in the community. Over two hundred citizens were guests on one or more of the four tours. The Conference itself was an all-day convention, with morning, afternoon, and evening sessions, and an all-day exhibition of the work of Newton's welfare organizations.

Many of the exhibits presented the activities of the organizations vividly and interestingly. For example, the Girl Scouts had a most attractive series of doll exhibits portraying the varied activities carried on by Girl Scout troops. Dolls dressed in bathing-suits were

EXHIBIT OF THE NEWTON PLAYGROUND DEPARTMENT AT THE FIRST ALL-NEWTON COMMUNITY WELFARE CONFERENCE

THE NEWTON DISTRICT NURSING ASSOCIATION SHOWED "A DAY WITH A DISTRICT NURSE"

engaged in water sports; others, in Scout uniform, gathered about the camp-fire, hiked through a miniature forest, or carried on various indoor activities, from taking care of the baby to helping prepare dinner in the kitchen.

Another exhibit, prepared by the Newton District Nursing Association, represented "A Day with a Visiting Nurse." A series of doll scenes showed the nurse, in uniform, leaving the office in the morning; entering one home to dress the burns of two children, another to serve a mother and her new baby, and another to care for a chronic invalid; assisting the doctor at a "well-baby" clinic; and finally recording at the office the service given during the crowded hours of her day.

Models and Demonstrations by Several Organizations

Several organizations—among them, the Hospital, the local Circle of the Florence Crittenton League, and a school center—presented models of buildings. The Playground Department had an impressive display of handwork done by the children during the summer; the City Planning Board presented a series of maps and photographs depicting plans and accomplishments for beautifying the city; the School Department had an exhibit illustrative of the Americanization work and health teaching carried on through the schools; the Young Women's Christian Association showed a small model of a gymnasium with a class in lively action; and other exhibits included photographs, posters, handwork, trophies, etc.

During the forty-five minutes preceding the afternoon session of the Conference, a number of ten-minute "demonstrations" of the work of some of the organizations was given on the stage in the Exhibit Hall. These included folk dances and games by groups of girls, a "pow-wow" by the Brownies (junior Girl Scouts) from the Stearns School Center, a sewing demonstration, and boxing-bouts by some young members of the "Live Wires Club" from a settlement house. Other similar demonstrations were given in connection with the afternoon and evening sessions of the Conference.

The underlying purpose of the Conference and Exhibit was to focus the attention of the community in a dramatic way upon the welfare problems of the city and the organizations which are striving to cope with these problems. There is considerable evidence that the Conference and Exhibit, with the attendant publicity, has succeeded in awakening a new and much more intelligent interest on the part of many citizens in the welfare problems of the community.

When planning an exhibit, other suggestions of value will be found in the article entitled "A Civic Association's 'Know Your Town' Exhibit" in THE AMERICAN CITY *for September, 1924, pages 202-205.*

Saving Old Roads by Resurfacing

By W. E. Grayson
Michigan State Highway Department

BEFORE any work is undertaken in resurfacing, an investigation of the soil and drainage conditions should first be made. In Michigan, if the investigation is favorable, a center line survey is run and the roadway is cut every 100 feet to determine the thickness of the gravel. One cut is made on the center line and one at each edge. The thickness of the gravel at each cut is measured and recorded by station number. If the gravel is of sufficient thickness (6 inches is the minimum permitted), the project is advertised and let. Bids are asked for black base on a tonnage basis and the surface per square yard.

When paving operations start, a power grader is employed to shape the roadway to as near the finished cross-section as is possible. A man using a template shaped to the finished cross-section of the road accompanies the grader and checks its operation. The road is then swept clean, all loose material being pushed out to the shoulder of the road, and about one-quarter of a gallon of Tarvia to the square yard is applied. A sufficient amount of time is allowed for light oils to evaporate before surfacing operations are begun.

It is found that a penetration of from ½- to 1 inch into the gravel is secured, which holds the metal in place and insures a perfect bond between the gravel and the surface coat. Wherever the surface breaks up under truck haul, it is swept clean and filled with black base.

Surfacing is started at a point nearest the semi-portable plant, going back one mile, completing it and hauling over it to the next mile, and continuing in this manner until the contract is completed. Using this method, the trucks do not break up the treated surface as they would if work were started at a point farthest from the plant and built toward it. The roadway is leveled up with a black base of somewhat finer aggregate than that specified by the Asphalt Association and carries about 6.5 per cent bitumen. This base varies in thickness from 1 to 5 inches, depending on the amount necessary to bring the roadway to the proper cross-section. All gravel that is not firmly consolidated is dug out and the hole filled with this material. Particular attention is paid to the edges, and truck drivers are instructed to drive close to the edge to find the weak places, if any. After this operation, pieces of 2 x 6 timber about 16 feet long are strung along by a light truck. Three ⅞-inch holes are bored in each piece and they are spiked along the curb line with iron pins 14 inches long and ⅞-inch in diameter.

The surface coat is then laid. An asphaltic concrete carrying 9.5 per cent bitumen, 14 per cent dust, 21 per cent ½-inch crushed limestone of good quality, and 56 per cent sand, graded closely after Richardson's heavy traffic mix, are used. Particular attention is paid to the sand grading. A man is kept constantly employed testing sand, and one taking temperatures. These results are recorded daily. The boxman who weighs the material is also checked two or three times daily by testing the weight of a loaded truck on heavy scales.

The surface coat averages from 2 to 2½ inches, but must be no less than 2 inches. All lumps must be broken up by rakers, and a back man is employed to fill honeycombed places, if there are any, directly after the surface roll. Three power rollers and one 1,500-pound hand roller are used. A 5-ton power roller surfaces with a straight roll. Immediately behind this

Labor More Important Than Materials

Considerable care should be used in selecting only experienced workmen for this type of construction. This is an important matter that is often overlooked by contractors laying asphalt paving. It is a fact that pavements laid 25 or 30 years ago are still giving good service and standing up under present-day traffic. Those pavements were laid by men carefully trained in the business. It is also a fact that many pavements have been laid during the last ten years which have failed absolutely. Stone, sand and asphalt used to-day are equal in quality to the material used 30 years ago, but workmanship alone is to blame for present-day failure. Ninety per cent of the failures were due to poor workmanship and lack of intelligent inspection by highway departments and municipalities.

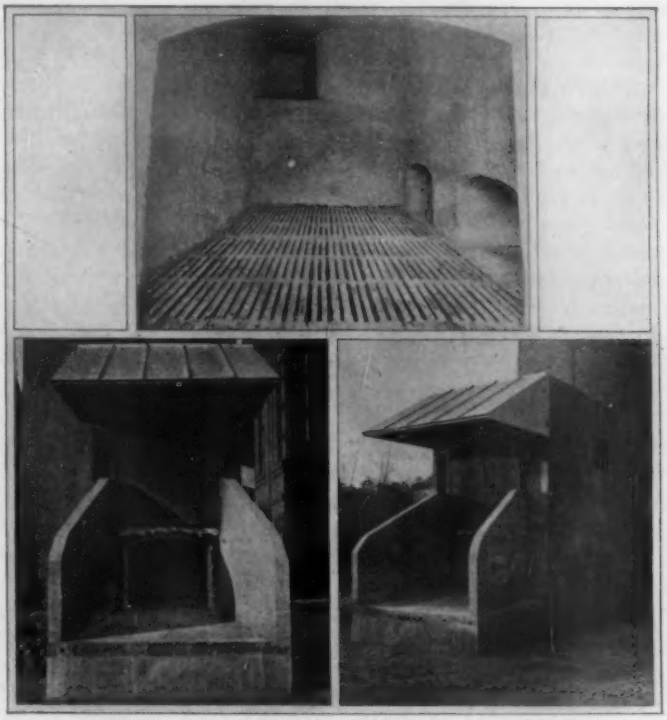
roll the hand roller is used for a cross-roll. A 5-ton roller then makes a double diagonal roll, followed by an 8-ton roller which also double-diagonal rolls, taking out the stop marks of the 5-ton made when surfacing with straight roll. After the diagonal roll, the 8-ton roller straight-rolls the entire surface and is followed by a 12-ton roller with a slow straight roll.

None of the roller men are allowed to speed their rollers. All are required to move slowly and half-lap each roll. An electric light has been fitted on the 12-ton roller, and this roller is used until the material is so cold that it makes no further impression. All the surface is straight-edged behind each roll, and low spots, if any, are filled at once and high places rolled out.

Rubbish Incinerator for Washington Park, Chicago

Small Incinerator Has Unusual Features

WASHINGTON PARK, located in the middle of Chicago's great South Side, is the city's third largest park, with an area of 371 acres. It has beautiful lagoons where the residents of the city may indulge in boating in the summer and skating in winter. This park has a dozen baseball diamonds, being better equipped for this game, probably, than any other Chicago park. Facilities for these diversions and, in addition, roque courts, an archery range, a wading pool, sand courts, a fly-casting pond, tennis courts, and a curling house, cause many people to flock to the park. At Washington Park also is located the administration building of the South Park Commissioners. The total area of the parks and boulevards under the jurisdiction of this board is 2,492.59 acres.



NEW INCINERATOR IN WASHINGTON PARK
At top, interior of unit, showing smooth walls and grate-bars. At bottom, left, front view showing door open to receive rubbish, and at right, oblique view of unit, showing clean-out doors

At such a large park as Washington, the job of disposing of rubbish and waste paper is a big one. The South Park Commissioners designed the unusual incinerator shown herewith to handle the job at this park. The incinerator was built at the base of the Washington Park power-house chimney and was constructed of concrete and steel. The rubbish is dumped on the platform and then shoved in on the grate through the fire-door. Inside the incinerator it burns furiously, because the high stack at the back gives a great draft.

The incinerator is lined with a monolithic lining instead of fire-brick, as the former eliminates the joints which frequently cause trouble with fire-brick. The monolithic linings were pounded in with a mallet when plastic and then smoothed with a trowel. The work did not require the services of skilled bricklayers. Plibrico, a lining manufactured by the Plibrico Jointless Fire Brick Company of Chicago, was specified by the South Park Commissioners for this incinerator.

Municipal Prohibition-Enforcement Ordinances

Sound Governmental Policy, Supporting the Constitution of the United States and Providing a Source of Local Revenue

By Wayne B. Wheeler
General Council, Anti-Saloon League of America

THE recent action of the city of Watertown, N. Y., in enacting an ordinance containing the provisions of the Volstead Act is an interesting development in the effort of municipalities to solve the problems which have arisen since the enactment of the Eighteenth Amendment. It evidences an awakening upon the part of local communities to the realization that the granting of the power to the Federal Government to legislate with respect to the liquor traffic did not contemplate any surrender of the exercise of the local police power. The Supreme Court of the United States in the Hixon case recently sustained a prohibition ordinance of the city of Los Angeles, Calif., and made clear that municipalities were not divested of local authority to enforce prohibition by the Eighteenth Amendment.

In New York State, since the repeal of the Mullan-Gage enforcement code by the Legislature in 1923, there has been no state law for prohibition enforcement. About 18 cities have enacted ordinances to give them some measure of control over the liquor traffic. Most of these ordinances have been designed to regulate business and occupation—in this case the soft-drink business. Such ordinances generally provide for the issuance of a license for the sale of any beverage and provide for the inspection of premises of soft-drink dealers by police officers.

The Watertown ordinance, in enacting the provisions of the Volstead Act, established a precedent in New York State. The enactment of ordinances by municipalities to control the liquor traffic is not new in most sections of the country. In California a large number of the cities have enacted what are termed "little Volstead acts," and under the peculiar organization of the state and municipal governments there, even county units have enacted prohibition-enforcement ordinances. The example set by Watertown is one which could be followed by every municipality in the country to the extent to which it may legislate under the terms of its charter or under the provisions of the state law defining the powers of the municipalities.

By the enactment of such legislation municipalities fulfill their obligation to support the Constitution of the United States. They also exercise the prerogative of local self-government. In addition, it is sound governmental policy. Where municipalities have such ordinances, the people are given greater security through the protection afforded them by their local police force. There is no reason why the citizens should pay taxes to maintain a police force and then withhold from the police the authority to arrest violators of the liquor law who are a prolific source of lawlessness. A prohibition-enforcement ordinance in most jurisdictions permits the fines imposed upon violators of the liquor laws to be paid into the treasury of the municipality. Where there is no ordinance, these receipts are paid into the state treasury or to the Federal Government. The amount which may be received by municipalities from prohibition-enforcement ordinances is considerable.

In the state of Ohio the law makes the trial jurisdiction of the mayors of villages and towns coextensive with the limits of the county in which the municipality is situated, over offenses which do not provide a penalty of imprisonment. The constitution of the state permits the Legislature to fix the disposition of fines and forfeitures. Statutes have been enacted which provide that one-half of the fines imposed shall go to the municipal treasuries, the other half into the state treasury. Councils of cities or villages may, by ordinance, authorize the use of any part of the fines as a law-enforcement fund for the employment of attorneys, detective or secret service officers and, where there are no funds available from fines, the councils may appropriate from the general revenue fund an amount not exceeding $500 for such uses. In this state many of the towns and villages have enacted prohibition-enforcement ordinances. Under this system several small towns and villages have collected more than $100,000 in a single year in fines.

In the state of Virginia, according to the sixth annual report of the Department of Prohibition submitted by the Attorney General, the cities and towns of that state having prohibition-enforcement ordinances imposed $81,870.50 in fines during the year 1923. The fines imposed in liquor cases are usually collected. The recent decision of the Supreme Court makes clear that municipalities have the power under the Eighteenth Amendment to enact enforcement ordinances wherever it is possible for them to do so under the terms of the charter or the provisions of the state law under which they are incorporated.

Voting Machines: Theory and Experience

By Russell F. Griffen
Secretary, Grand Rapids Citizens' League

OUR entire system of government depends upon honest elections and fair counts. The secret ballot system prevails in America and yet in hundreds of cities using the paper ballot system in the recent election, thousands of voters, because of the congestion that prevailed, were forced to mark their ballots on the side of the wall, on the floor, or some other place under the direct observation of those present. This, I believe, is contrary to the election laws of every state in the Union.

But this is not the most serious indictment that I would submit against the paper ballot system. Your attention is directed toward the problem of spoiled ballots.

Frank R. Kent, who follows with the pen the political fortunes of Maryland, has this to say with regard to spoiled ballots:

"In every state at every election thousands of ballots are thrown out because they have been improperly marked, either through carelessness, ignorance of the exceedingly easy rules, or confusion with the arrangements of the form of the ballot. In the state of Maryland alone, more than 3,000 voters are disfranchised at every election because they fail to mark their ballots properly. Just think for a moment what the totals are in the larger states in the Union. The question is often asked as to the principal causes of spoiled ballots. They are: (1) Voters persist in using a fountain pen instead of the pencil that is provided. (2) Distinguishing marks that can be construed as an attempt to identify the ballot. (3) The failure of voters to keep the cross-mark fully within the square that is provided. (4) Voters insist on signing their name on the ballot. (5) Enthusiastic citizens who feel impelled, after having properly and accurately marked their ballot, to write across its face some message, as 'Hurrah for John Jones,' or 'To H—— with John Jones.'"

Spoiled ballots are impossible on the voting machine. This I consider to be important when one considers the closely contested municipal, county and state elections that prevail everywhere.

Then there is the job of counting the ballots. Under the paper ballot system at a normal election, from six hours to a week are required for the tabulation of the vote. Under the machine system the totals are automatically tabulated at the close of the day and these totals are simply transcribed to the return sheet, and the election extras are on the streets with the complete results within an hour after the polls close. Aside from the advantage of accurate and immediate returns, we must not lose sight of the expense that is saved by reason of the fact that election inspectors will serve for considerably less for 12 hours' work than for 24 or perhaps 48 hours' labor.

It is well known by those who have conducted elections that with the paper ballot, a free ballot, a secret ballot, a fair count or an honest election can be secured only on rare occasions when conditions are favorable, and large sums of money paid to persons to watch the count. Improvements in the form of ballot and methods of counting have not prevented illegal practice. New forms of corruption seem to be invented as fast as old evils are suppressed. I grant you that at most elections officers endeavor to do their duty honestly and conscientiously. However, when we consider that there are hundreds of thousands of election officials who serve in election precincts, you will agree, I am sure, that it is a physical impossibility to secure competent people to serve in all voting precincts. It is also well known that some people are willing to do anything to increase the advantage of their friends who are candidates, and it is barely possible that election officials may be some of these people. At every recount that is held,

this fact is demonstrated. Recounts are unknown under the machine method of voting.

The question of expense naturally follows. We have two or more elections in Grand Rapids every year. Our experience during the past three years convinces our city officials that the machines will pay for themselves over a period of ten years. This saving is brought about by the elimination of printing the ballots, the reduction of salaries for election officials, and the consolidation of voting precincts. This last-named item is important when we consider that one minute is the average time spent in a voting machine booth, whereas in the city of Detroit, I am told, at the last presidential primary election from 10 to 20 minutes was consumed in marking a paper ballot.

In conclusion, let me say that if cash registers prevent pilfering from merchants or street car companies, if adding-machines insure greater accuracy in keeping accounts, if automatic railway signals and switches provide a greater degree of safety to the people, is there a good reason why a mechanical device for voting should not be used when it will secure the safety of the ballot?

ACKNOWLEDGMENT.—From a paper read before the annual convention of the National Association of Civic Secretaries, at Cambridge, Mass., November, 1924.

See "Municipal and Civic Publications" in this issue, for notice of report on "The Voting Machine."

Assessed Valuation and Taxation Statistics for 1924—Third-Class Cities of Pennsylvania

(Compiled by the Bureau of Municipalities, Department of Internal Affairs, Harrisburg)

	1924 Estimated Population	Assessed Valuation. Basis for 1924 Taxes. Total	Real Estate	Personal Property Taxable by City	Occupation	Assessor's or City Clerk's Estimate of Percentage That the Assessed Values Are of the Full Value	1923 Mercantile Tax Receipts	Total Millage Levied by City	Millage for Debt Service
Erie	115,614	$120,043,483	$114,934,429	†	$5,210,700	80	none	12.2	2.4
Reading	111,364	104,123,193	no data	no data	none	90	58,000	11.5	2.723
Allentown	88,534	72,629,614	72,576,854	52,760	none	60	38,238	10	1.15
Harrisburg	81,702	69,219,355	69,204,205	15,150	none	50	32,006	13	3.88
Wilkes-Barre	76,604	88,117,822	82,760,319	69,520	5,287,983	70	none	12	2.18
Johnstown	70,343	74,630,330	68,580,780	50,000	5,999,550	80	42,125	14	4.5
Chester	65,649	61,000,000	61,000,000	none	none	100	none	9	.....
Altoona	64,880	60,590,565	60,590,565	none	none	60	37,364	7.5	.25
Bethlehem	60,428	63,521,333	60,118,373	60,000	3,342,960	60	6,825	11	3
Lancaster	55,590	33,561,415	33,556,415	5,000	none	40	none	11	4
York	48,648	38,073,323	36,195,508	27,075	1,850,740	60	30,720	10	2
New Castle	48,504	33,735,410	30,571,960	†	3,163,450	55	20,774	13.5	2.25
McKeesport	48,465	41,000,000	no data	no data	none	70	none	10.5	2
Williamsport	41,985	30,187,750	30,187,750	none	none	70	25,338	13	1.903
Easton	35,992	35,417,804	35,417,804	none	none	55	25,386	12	2.125
Hazleton	35,088	25,462,045	23,600,335	36,020	1,825,690	65	none	11	3
Lebanon	25,052	19,840,000	19,000,000	none	840,000	66⅔	none	10	3
Butler	24,834	19,212,000	no data	no data	no data	50	none	13.5	4.7
Sharon	24,085	15,605,090	14,781,840	none	823,250	40	none	16	5.5
Oil City	22,716	13,828,973	13,360,673	58,650	409,650	50	no data	12.5	2.15
Washington	22,592	12,394,940	no data	no data	no data	35	none	16.25	6
Pottsville	22,550	*23,989,079	no data	no data	no data	..	none	13	3.775
Monessen	20,380	11,288,790	no data	no data	no data	50	none	13	4
Duquesne	20,365	18,211,460	no data	no data	none	70	none	12	2
Pittston	19,414	10,670,000	no data	none	no data	33⅓	none	15.75	5.75
Carbondale	19,297	12,000,000	no data	no data	no data	70	none	10	2.5
Sunbury	16,525	5,535,000	5,530,000	5,000	none	25	no data	12½	2.5
Uniontown	16,500	20,690,650	no data	no data	no data	50	none	10	2
Coatesville	15,923	13,356,985	13,356,985	none	none	70	none	8.5	1.8
Bradford	15,721	8,675,448	8,675,448	none	none	60	no data	16	3.5
Meadville	15,304	7,999,725	7,642,665	800	356,260	50	none	17.5	7.5
Connellsville	14,198	8,142,536	no data	no data	no data	50	11,038	16	3
DuBois	14,115	4,484,000	no data	no data	no data	33⅓	6,513	21	5.65
Clairton	13,389	17,520,000	16,446,000	9,000	1,065,000	75	none	9	.....
Franklin	10,252	5,925,725	5,663,120	2,805	259,800	33⅓	none	12	1.5
Monongahela	9,137	4,997,346	4,463,051	9,825	524,470	40	.....	15	5
Lock Haven	8,880	4,507,620	no data	no data	none	60	none	13	3
Titusville	8,780	5,678,563	5,671,863	6,700	none	75	4,265	11	2.831
Corry	7,736	4,938,425	no data	no data	no data	66⅔	none	14.5	2.57

Note: Poor taxes levied by cities as follows: New Castle, .75 mills; Williamsport, 1.6; Bradford, 2.5; DuBois, 3. 5; Lock Haven is included in general millage.

*Pottsville assessment in litigation.

†Included in Occupation (next column).

The Water and Power Plant of Stroud, Oklahoma

By John A. Walker
Superintendent, Water and Light Department, Stroud, Okla.

FOLLOWING the trend of many other progressive communities in providing a municipal water-supply and electric light and power service for its citizens, the town of Stroud built its municipal system in 1907. The original plant consisted of a single direct-connected generator, driven by a steam engine with two steam pumps for the water-works. These pumps operated against direct pressure in the mains, as no tank or stand-pipe was provided. The water-supply was obtained from four drilled wells near the plant, and these wells were pumped with plunger pumps, all driven from a common power head by a steam engine. This arrangement is similar to that used in the oil fields where a group of wells is operated by a single engine. Two return tubular boilers completed the equipment of the city plant. Natural gas was used as a fuel and at that time was cheap enough to allow its use under a steam boiler with fair economy.

From the start the water-supply was inadequate and various schemes were tried out with a view to increasing the supply. Considerable effort and expenditure of money along this line did not secure satisfactory results. Because of the poor service rendered by the water-works, the development of business was slow. The municipal ownership of the water and light utilities was not satisfactory until a demand was made by the citizens for improved service. In 1917 a bond election was called to provide funds to rehabilitate the system. The bond election carried, and a competent engineering firm was engaged to prepare plans for the improvement. It was decided to install an internal-combustion engine, either oil or gas; and as natural gas was plentiful in this locality, gas engines were decided upon and duplicate generators installed. There was some doubt among the city officials as to the reliability of this type of power and it was feared that the up-keep expense would be excessive. The experience of six years of operation, however, has proved that this type of power is dependable and highly economical and the cost of the maintenance within reasonable limits.

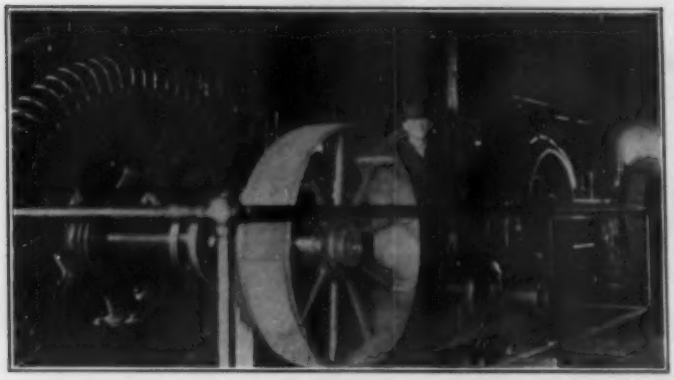
The performance of these engines so pleased the trustees that a third unit was installed later to meet the increased demands upon the plant. During this entire period the water and electric service had been without interruption, except for a few instances of short duration, and there has been no cause for complaint regarding the regularity of operation. The engines are of the Foos vertical, multi-cylinder, 4-cycle type. It is the writer's opinion that engines of this type require no more skillful attention than steam plants. A general deficiency in knowledge of the proper care and operation of internal-combustion engines is the most frequent cause of difficulty in operation. Improperly constructed cooling systems for controlling the temperature in water-jackets, or the use of unsuitable water for this purpose, is the direct or indirect cause of most trouble experienced in the operation of all kinds of internal-combustion engines, and it is of the highest importance to see that water containing incrusting salts or having a tendency to lime up the jackets is not used.

Municipal Plant Must Be Run Competently

The service which the municipally-owned water and light plant at Stroud has been able to render under unfavorable conditions shows distinctly in favor of municipal ownership. It goes without saying, however, that a municipally-owned utility must have careful and competent business administration and its operation management must be unhampered and undisturbed by periodic political changes and influences. The more completely the operation of the utility can be removed from politics, the better are the chances for satisfactory results under municipal ownership.

Water-Pumping Equipment

The Stroud water-supply is now secured from four wells about 400 feet deep. An air-lift is used on three of them, while the other is pumped with a double-stroke plunger pump



INTERIOR OF STROUD, OKLA., POWER-HOUSE

driven by an electric motor. The air-lift, while perhaps not the most efficient means of pumping deep wells of the drilled type, has shown itself to be the most reliable according to our experience. The double-stroke plunger pump is highly economical and it is advantageous to have both kinds of pumps where a number of wells are to be operated.

In August, 1923, oil was discovered near Stroud and considerable development started in the local field, causing a sudden influx of population and a heavy demand on the municipal plant for both water and electric service. Within one year the output doubled and numerous extensions and enlargements had to be made quickly. While a steady increase in demand for service means a healthy increase in business, it is perplexing and difficult to meet the extraordinary conditions brought about in a boom town. The average oil town "boomer" is usually a liberal user of service, but cannot always be depended upon as a permanent customer. The plant is now serving a population of about 4,000 with a daily pumpage of approximately 125,000 gallons.

Electric Plant

The electric output is nearly 40,000 kilowatt-hours per day, including street lighting. The water service is 100 per cent metered, the rates averaging about 50 cents per 1,000 gallons for the residential customer, who uses slightly over 3,000 gallons per month. It is expected that the consumption will be increased when a more general use is made of the sewer system which has recently been completed. The operation of the block rate system tends to materially reduce the unit cost to large customers. The operation of the electric rates permits a charge of approximately 12 cents per kilowatt-hour for 50 kilowatt-hours per month in the block rate system, and it likewise reduces the average rate on such consumption. The power rates make the cost of 1,000 kilowatt-hours per month about 6 cents per kilowatt, and for 2,000 kilowatt-hours per month the average is about 4.75 per cent. The minimum rate on power is made on the basis of $1 per horse-power per month.

Revenue

The revenue derived from the operation of the municipal plant has been sufficient to allow the plant to finance all extensions, meters, transformers, wires, poles, pipe, etc., which have been necessary to take care of the increased demand for service and all have been paid for out of surplus earnings. Fire-hydrants, street lighting and water used in street sprinkling are furnished free of any direct charge against the city, and, in addition, all churches are furnished service practically free of charge. The amount of free service is limited so as to require economy in its use by the charitable and religious organizations.

City Planning Exhibits to Be Held This Spring

THREE important exhibits of city and regional planning will be held in the eastern part of the United States during the spring of 1925. The first will be under the auspices of Carnegie Institute, Pittsburgh, and will be held in that city from March 2 to March 30.

The largest of the three exhibits will be in New York from April 20 to May 3. It will be divided into two parts—one consisting primarily of technical material, which will be at the Hotel Pennsylvania in connection with the joint convention of the National Conference on City Planning and the International Federation for Town and Country Planning and Garden Cities; and the other consisting of material with a more popular appeal, which will be shown at the Grand Central Palace, as a part of an elaborate Architectural and Allied Arts Exposition.

Under the auspices of the American Civic Association there will be held in the Pan American Union building, Washington, D. C., on April 28, a "Pan American Conference on Capital Cities." The Association is inviting the capitals of the Americas to send exhibits of what they are doing in their capital cities. Both the foreign and the American delegates to the above-mentioned New York conferences will be invited to attend the Washington exhibit and meetings. A trip around Washington is being planned as one of the features of this Capital Cities conference.

A Township Park and Playground System

By Jacob L. Crane, Jr.
Engineer and Landscape Architect, Chicago

IN many cases the breach between the industrial town and the farming people around it grows wider each year. To both the country and the town this means a loss of greater possibilities for community development. During working hours there is little chance to bring them together, but during the hours and days of leisure and recreation the opportunity for contact between them has not disappeared. It would therefore seem sensible to provide recreation facilities of such character and in such locations that they may be used jointly by the industrial population and the farming population.

It may be argued that these two groups do not really care to mix and that this kind of joint recreation is only another attempt to intrude the ideas of well-meaning theorists into the private lives of people whose liberty and freedom of choice become narrower each year. In reply to this argument, the Canton township park and playground system has been planned so that the various facilities will be available to both townspeople and country people for their use jointly or separately, as they may see fit.

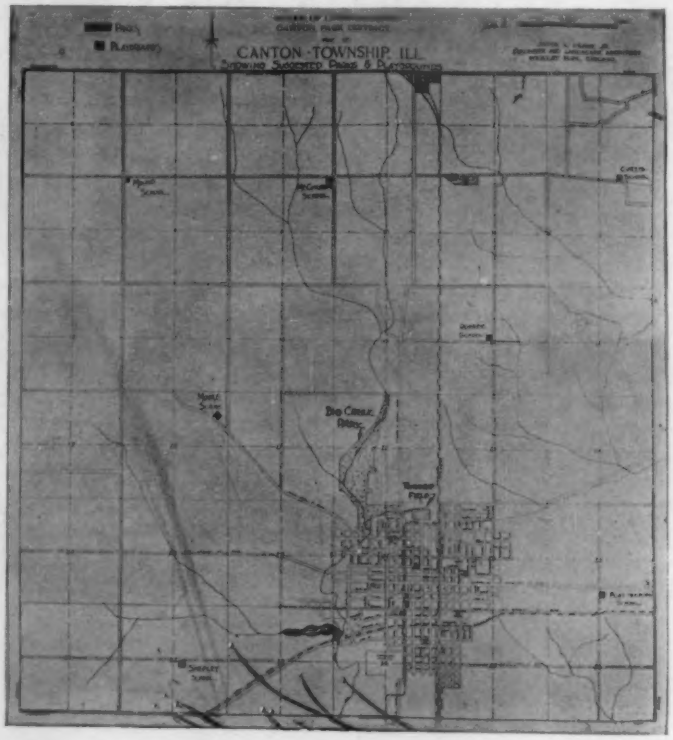
Canton is a town of about 12,000 people, situated in the agricultural belt of Illinois. It has always been a farming center and trading and shipping point, but since the Civil War a large implement-factory has given to the town an essentially industrial character, and a large part of the population works in, or is dependent upon, this manufactory in one way or another.

The township, six miles square, is entirely tributary to Canton as a trading center; and while Canton's territory extends somewhat beyond the township boundaries, still it is that area which is most closely allied to the city center. The Canton Park Board when it was organized realized the advantages which would accrue from a park system which would make it possible for the country people and the town people to meet for purposes of recreation, and they defined the park district as the township.

In examining the requirements for this Park District, it was decided to provide first, parks, and second, playgrounds, to conveniently serve the entire population of the township. The report which was made and adopted by the Park Board outlines a park and playground system based on this requirement.

At every school but one in the entire township, sixteen in all, it was found that sufficient ground had already been acquired to provide for playgrounds adjacent to, and overlooked by, the school buildings. At one school additional ground had been acquired, and at the site of the combined high school and city grammar school a tract which was intended for a high school athletic field but which was found inadequate in area for that purpose has been devoted to playground purposes, while a combined athletic field for the city and the township is located on a different site.

This township athletic field is about twelve



acres in area, situated at the intersection of main roads and on the trolley line near the geographical center of the township, but still within the city limits of Canton, and it provides for football, baseball and track contests, and also for stock shows, pageants, holiday celebrations and similar activities for either the city people or the country people, or both.

An Acre of Park for Each Hundred Population

It so happens that the most interesting and attractive natural feature in the township is located across the road from the proposed township athletic field, within ready access of the entire township area. It consists of a creek bottom with some very beautiful woods and pasture land of only moderate commercial value. The illustration shows how it is related to the main highways and to the athletic field. An area of 150 acres has been acquired, which provides park land at the rate of one acre per hundred population for a population estimated for 1940.

At the present assessed valuation of the property in the township, the Park Board can issue bonds to the amount of about $165,000 and it can raise by taxes about $13,000 annually for operation expense. In laying out the park and playground system for the township, these available funds were carefully apportioned, first, between the various types of use —park, playground and athletic field, and second, between the city and the township outside the city. On the basis of population, it was found that the township outside the city was entitled to only one-seventh of the available funds, but on the basis of assessed valuation and the resulting contribution to tax income it was found that the township was entitled to more than one-quarter of the available money.*

The Park Board has arranged the closest cooperation with the school district and with the city administration. The Park Board in general furnishes the playground equipment to be placed on land adjacent to schools and belonging to the school district. Further, the Park Board is improving a number of small city-owned parks, including railroad station grounds and the market square.

A comprehensive program has been adopted by which the Park Board can go forward with the various projects year by year under an arrangement which will be equitable to all parts of the township and also be well within the financial power of the district.

*The assessed valuation per capita is about $700 in the country and about $300 in the city of Canton. The money had to be apportioned equitably according to the relative contribution made by the city and the country districts.

Three-Part Gas Rates

THE Three-Part Rate is composed of two parts service charge and one part gas charge, as now proposed by some companies. By this Three-Part Rate the total rate per thousand feet of gas used is much increased to the majority of consumers, though decreased to the minority who use large volumes.

First in the Three-Part Rate comes the fixed service charge of 75 cents per month, or $9 yearly. Second comes the variable service charge of 32 cents for each cubic foot of gas used during any one hour of a year, which reaches $16 to $32 for an ordinary consumer using 50 to 100 feet in some hour. Third comes the rate of 40 cents per thousand feet for gas actually used, which for a consumer of 25,000 feet amounts to $10 in the year.

For an ordinary consumer, the Three-Part Rate thus imposes a service charge of several dollars per month that must be paid whether gas is used or not. It is claimed that the Three-Part Rate reduces the average rate for all gas used, but this claim lacks confirmation; and even if it were true, the fact remains that only a few of the largest consumers get lower rates, while the majority pay much more.

As shown by a recent investigation in a city where the net rate for natural gas was 80 cents per thousand feet with no service charge, the average use of gas per consumer was just under 67,200 feet yearly, or 5,600 feet per month. In spite of this average of 67,200 feet of gas per consumer yearly, it was found that 58 per cent of all consumers averaged only 25,000 feet of gas per year.

A consumer who uses 25,000 feet of gas yearly and 50 feet of this gas in any one hour of the year, on the Three-Part Rate, must pay the fixed service charge of $9.00 plus the variable service charge of 50 times 32 cents, or $16, a total service charge of $25, and also $10 for the gas. This total of $35 for 25,000 feet of gas amounts to $1.40 per thousand feet, which is 75 per cent more than the flat rate of 80 cents per thousand feet.

ALTON D. ADAMS.
Public Service Engineer, Boston.

BEECH ROAD, BOURNVILLE, ENGLAND
At the bottom of the gardens, fruit trees form a screen between the houses

Bournville in 1924

AN attractively illustrated booklet published this year by Cadbury Brothers, Limited, Bournville, England, brings up to date the story of the development of this well-known garden city, which dates back, as has often been recounted, to the late George Cadbury's experiences in contact with Birmingham working men, from which he came to the conclusion that most of our social problems have their roots in the housing question.

Bournville, though inevitably associated in the public mind with the cocoa and chocolate factory of Cadbury Brothers, Limited, is in many ways more akin to such experiments as Hampstead and Letchworth than to other schemes connected with large industries. The chief difference between Bournville and, say, Port Sunlight, is that it is an experiment in general housing and not a scheme for providing homes for the employees of one factory. Thus, although a large number of the Bournville factory workers live in the village, it is not reserved for them, and, as a matter of fact, about sixty per cent of the householders work elsewhere.

Up to the early part of this year, when the booklet was published, a total of 1,474 houses had been erected on the Bournville estates. Of these, 437 were rented to tenants according to the following scale:

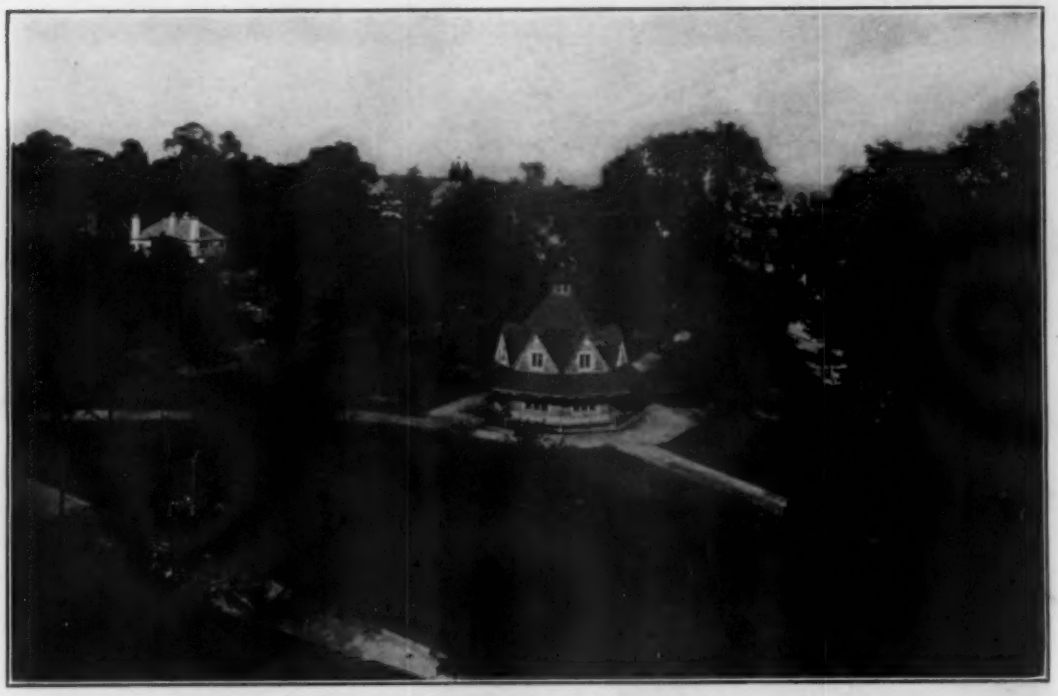
WEEKLY RENTS
(In Shillings and Pence)

6/- and under	25
Over 6/- and up to 7/6	120
Over 7/6 and up to 8/6	122
Over 8/6 and up to 9/6	63
Over 9/6 and up to 10/6	36
Over 10/6 and up to 12/6	56
12/6 and over	15
	437

(Plus rates in each case)

Although the rents are kept as low as is compatible with securing a fair return, they are commercial rents. A return of 4 per cent per annum is aimed at, and on the developed portion of the estate this rate of profit is exceeded. All private interest, however, in capital and revenue was surrendered by Mr. Cadbury when he handed over the estate to trustees for the nation, and the net revenue is expended on further development and the purchase of additional land. Thus the property increases year by year at an accelerated pace.

The interiors of the houses are arranged for comfort, convenience, and economy in space, household expense and labor. All those built



VILLAGE GREEN, WITH REST HOUSE PRESENTED BY BOURNVILLE WORKS EMPLOYEES TO MR. AND MRS. GEORGE CADBURY, TO CELEBRATE THEIR SILVER WEDDING

in the last twenty years have baths, and practically all have gardens. Where the awkwardness of the site precludes the garden, the tenant may have a separate garden if he wishes. The Trust lays out the gardens, so that when a householder takes possession, he finds the fences and paths made, the ground broken up, and fruit trees planted. The latter are so arranged as to form screens between houses whose gardens adjoin.

Situated only four miles from Birmingham, the garden village naturally presents a marked contrast to most of the districts in that great manufacturing center. Instead of dreary rows of houses, all alike in appearance and accommodations, one finds variety, cleanliness, and the color of gardens, lawns and trees. There is the tree-covered village green with its picturesque rest house, the village park, nursery gardens sheltered by the remains of old woodland, elementary and secondary schools, colleges, a school of art and crafts, a meeting-house and a church—all the essentials, in fact, of a live community.

Prizes Awarded for Fire Prevention Slogans

AWARDS have been announced in the nation-wide Fire Prevention Slogan Contest inaugurated by the Glens Falls Insurance Company, of Glens Falls, N. Y. Prizes totaling $2,000 have been awarded, including a first prize of $500; a second prize of $250; a third prize of $100; seven prizes, each $50; ten prizes, each $25; thirty prizes, each $10; and fifty prizes, each $5.

The 100 prize-winners, men, women, boys and girls, live in 89 towns and cities in 40 different states and in Canada.

The slogans for which prizes of $25 or more have been awarded, in their order as announced by the judges, are:

$500 Prize

Answer the "Burning Question" with Fire Prevention.

$250 Prize

A Burning House Is a Burning Shame.

$100 Prize

Fire Waste Can Never Be Replaced.

Seven $50 Prizes

The Fire Fiend Fattens on Faulty Flues.
Do Your Part and Fire Won't Start.
Fire Feeds on Careless Deeds.
Let's "Blaze the Way" to Keep the Blaze Away.
The Little Fire You Leave May Leave You Little.
Liberty Does Not Stand for Carelessness, Although She Holds a Torch.
Help Keep America from "Going to Blazes"—Guard Against Fire.

Ten $25 Prizes

Fear Fire and Prevent It.
Fire Is an Upstart; Keep It In Its Place!
What Fire Destroys Never Returns.
Abolish Hazards—and You Abolish Flames.
Remember the Ember!
Fire's a Menace—Kill It With Care!
Fires Are Rare When Care Is There!
Fire Prevention Is Self-Protection.
Bank Your Fire as Carefully as You Do Your Dollars.
A Match May Be Down But Not Out.

Workmen's Homes and Playgrounds on Site of Old Paris Fortifications

EDITORIAL NOTE.—*At the request of* THE AMERICAN CITY, *Stephen Child, the American representative of the International Union of Cities, who contributes to our columns each month a page or more of items of civic interest selected from the many gathered by that organization, has prepared the following brief article from material furnished us by the "Paris Office Public d'Habitations à Bon Marché." Some later details are given on page 225 of this issue.*

ALL over France much is being done to better house the workman and his family. As an important aid in the accomplishment of this purpose, the Société Française des Habitations à Bon Marché has been established.* Local so-called Public Offices for the Building of Inexpensive Homes have also been set up. Among the more important of these are the Offices for the City of Paris and for the Department of the Seine, the latter having recently completed some very attractive garden suburbs at Les Lilas, Drancy, Staines, Suresnes and Plessis-Robinson, suburbs of Paris.†

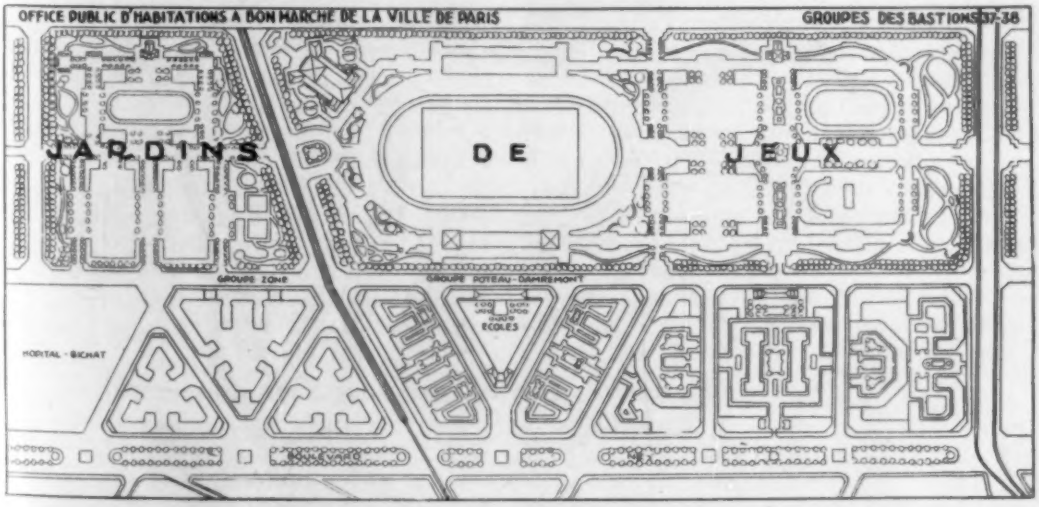
The Paris Office is now at work upon a very ambitious housing project to be located on what is known as Bastions 37, 38 and 39 of the outer fortification belt now being removed. It will be noted that while the buildings are what we should call multi-family houses and five or six stories in height, they adjoin ample open spaces—former drill grounds—which are to be developed for parks and playgrounds.

This project extends between the Porte de Clignancourt and the Bichat Hospital, a distance of about 755 metres, the area having a breadth of about 125 metres. Along the southern limits of the property passes the Boulevard Ney, to the east is the Boulevard Ornano, and to the west the property of the Bichat Hospital. At the north a new highway separates the housing property from the proposed park and playground developments, to be laid out on the former drill grounds.

The group that is in course of construction to-day will shelter 2,467 families—a population of between 14,000 and 15,000. The part of the work first undertaken, the group Poteau-Damrémont, extends between the Porte Montmartre (Rue du Poteau) and the Rue Damrémont, extended, an area of about 14,600 square metres; of this, 7,240 square metres, or nearly half, will be covered by buildings five and six stories in height. These buildings will include 682 apartments, each

* See brief account of the annual report of this organization in THE AMERICAN CITY for May, 1924, page 565.

† See THE AMERICAN CITY for April, 1924, page 447.



PLAN OF A PORTION OF THE HOUSING PROJECT TO BE LOCATED ON THE OUTER FORTIFICATION BELT OF PARIS, FRANCE

apartment having, besides a small entry or vestibule, a kitchen, a water-closet and other toilet facilities. The number of rooms varies: 46 apartments having four rooms each; 390 having three rooms, 186 with two rooms, and 60 with one room—besides the above-mentioned conveniences, common to all. On the ground floor, premises are allotted for industrial and commercial purposes occupying 3,240 square metres.

The second part of the large project, which will be commenced very soon, includes similar groups of multi-family buildings to be built between the Boulevard Ornano and Rue Damrémont, extended, a total area of about 31,732 square metres. These buildings will also be five and six stories in height, but covering only about 31 per cent of the ground. The greater degree of openness here provided is due to the fact that the "Metropolitan," Paris' underground railway, has a subway loop under a portion of this area which cannot be built over.

This group will include 984 apartments, each of which will have the same arrangement as the former group as regards entry, kitchen and toilet facilities, but again varying in number of rooms: 58 having four rooms, 547 having three rooms, 327 having two rooms, and 52 with one room. Shops and industrial premises on the ground floor will have an area of 10,190 square metres.

The third part of the agglomeration is included between the Porte Montmartre and the Bichat Hospital. Here three groups of buildings are to be erected, known as (a) the Groupe Montmartre, (b) Groupe de la Zone Militaire, and (c) Groupe Jean Dollfus. The total area of the plot is 18,945 square metres. The Groupe de la Zone has an area of 8,555 square metres, 3,460 of which, or about 40 per cent, is covered with buildings, again five and six stories in height. This group will include a building one story only in height, covering an area of 585 square metres. The group will include 345 apartments with arrangements similar to those noted above, 23 with four rooms, 191 with three rooms, 85 with two rooms, and 46 with one room. The ground floor area, to be used for shops and commercial purposes, is 1,500 square metres.

The other two groups mentioned above are just alike. These cover an area of 5,195 square metres, of which 2,450 square metres, or 47 per cent, is covered with buildings five and six stories high, and 750 square metres with buildings but one story in height. There are 228 apartments with conveniences similar to the others; divided as follows as regards rooms: 4 with four rooms, 133 with three rooms, 58 with two rooms, and 33 with one room. Shops and industrial premises occupy 2,475 square metres.

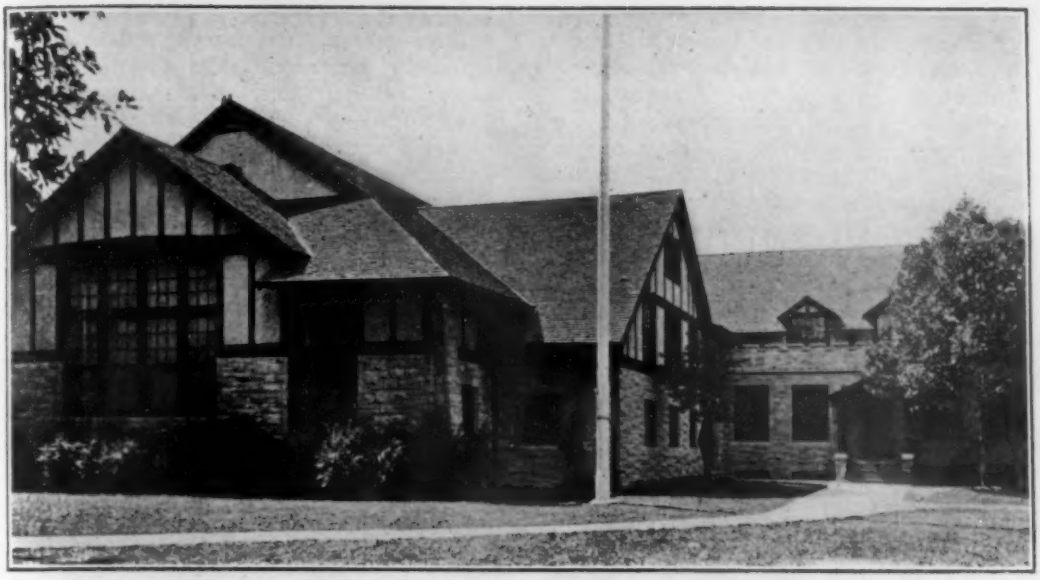
The average area of each type of apartment is as follows: those having four rooms and other conveniences, 60 square metres; those with three rooms, 51 square metres; those with two rooms, 36 square metres; and those with one room and similar conveniences, 27 square metres. All the rooms are to be lighted by electricity; the kitchen and toilet facilities will have tiled floors. Each kitchen will be provided with a gas range, set upon an enameled stone base; a sink, and a small, well-ventilated pantry. All the apartments will be provided with a chest for soiled linen and a storeroom. The stairways will be of reinforced concrete with stone treads. In the various groups there will be installed separate storerooms for baby carriages and bicycles. Each group will include one or two small rooms for the janitor and a shelter for the night watchman. A general superintendent will be provided with rooms in the Ornano group and will direct the entire project. Two enclosed places will be provided for little children; these will be separate courts, each with direct access to the near-by playgrounds. Areas have been reserved on the border of the playground for schools for children, for a mother's school and for a crêche.

At the angle of the Rue Damrémont and the Boulevard Ney, there is to be built a public wash-house with 100 compartments. Here will be washing machines, drying machines and out-of-door drying yards. This building will also include 120 compartments containing tubs and shower-baths for men and women.

College Course in Zoning and City Planning

THE Official Publication of the University of Maryland, College of Commerce and Business Administration, announces a course in Zoning and City Planning as part of the courses required for a degree, and as a required subject for those taking the Real Estate course. As described in the catalog, the course in Zoning and City Planning considers the general layout of the city for retail, wholesale and financial businesses, residential sections, manufacturing, transportation facilities, width of streets necessary, fire protection, parks, street railways and traffic conditions, suburban developments, influences upon real estate values, trend of population.

The instructor is Jefferson C. Grinnalds, Consultant, Zoning and City Planning, Baltimore.



THE COMMUNITY HOUSE IN WINNETKA, ILL., IS THE CENTER OF THE COMMUNITY LIFE

A Suburb Sets the Pace

By William L. Bailey

Professor of Sociology, Northwestern University

WHAT Winnetka has done for the development of truly American institutions is to be measured, not merely by local success, but by the extent to which experiments like hers are known and imitated by similar communities.

The Winnetka Community House is already widely known, but it is only the central feature of a group of community institutions that together make this town a leader in community organization. This Community House, scarcely more than thirteen years old, has readily secured a $100,000 addition, is utilized annually by more than 100 different and regular groups and organizations, including more than 83,000 people of all ages, nationalities and classes, and has served more than 1,000,000 people in the community since it opened its doors. This is the brief story of a community house in a suburban residential town, even now of only 8,000 people, yet these service data compare favorably with the record of the busiest sort of settlement or institutional church in densely populated areas of any great city. It indicates the grip which this institution has on the total life of the place.

But this Community House cannot be understood or appreciated at its true value until it is seen in its relations to a unique development of church life, very forward-looking experiments in schools, and the contribution of a number of citizens with a true community consciousness. All these have helped to make the better-known Community House a success, but they are in themselves of scarcely less significance; indeed, in some ways, since they display familiar American institutions with a new outlook and a new spirit, they are even more significant.

Of the more than 10,000,000 people now resident in the suburbs of the larger cities the great majority are living in residential communities of the town size and type. There are now perhaps a thousand of these suburbs that have conditions and problems of community life similar to those of Winnetka.

Already the Winnetka ideas have had their effects in neighboring suburbs of Chicago. This is especially true of the North Shore towns which are of the same type and grade of suburb as Winnetka, for these unique community institutions were developed by, in, and for a purely residential population of a high economic and social status. Such a community has no contributory country population. It does, however, by reason of its very well-to-doness soon experience a marked stratification, with the coming of laboring and servant classes. And a considerable portion of this is foreign. Religious differences are not want-

ing, and Roman Catholic, Jewish, and various Protestant bodies of foreign traditions enter to make the situation truly American in its eclecticism. The suburban community is the most rapidly growing of any class of place in the United States, and usually contains some persons who have leisure to interest themselves in community experiments. A suburban community may therefore well assume leadership in facing the problems which are common to American communities of all classes.

A bulletin of the Department of Agriculture gives publicity to the Winnetka Community House in a description of rural community houses. This is quite justified, for when it was issued Winnetka was barely over the 2,500 mark and was very much more of a country town than it has been since then. And these institutions had their inception in the place when it was not so different from thousands of other towns and villages and was beginning to face conditions of change and complexity which most of these will sooner or later face.

Winnetka is definitely suburban, being an intermediate link in a long chain of contiguous communities stretching north from Chicago along the shore. But suburbanization is essentially a result of relationship of one community to another, and to-day the greater number of American communities are coming into closer and closer relations to others, larger and smaller. More than one-third of all towns and villages in the country are within the radius of distinct influence of cities of more than 25,000.

In this particular community the best of New England traditions, of the free church, of the town meeting, of the library, of the village improvement association, and of the public school, found a favorable opportunity for expression. The town meeting has given place to the latest forms of commission and business manager government and to a more complexly organized civic spirit, but its genius is the same. The Congregational Church was from the first a community church —though Episcopal, and latterly Catholic and Jewish, interests are strong—and was the mother of the Community House idea. The child has quite outgrown the parent—as perhaps should be. In their relationship a quite new type of Protestant church has appeared. If the Community House be regarded as the expression of its service program, there are very few churches in America that can compare with it in equipment and activities. Its well-worked-out program of religious education can hardly be surpassed. As a solution of many a vexed question of denominationalism, it points the way to what the American church may become. This church is in a very large measure the heart of the life of this community, and still there are ready and free relationships with religious groups that cannot yet be incorporated in the common life.

This community was a pioneer of the township high school idea, and its New Trier High School is very well known. Its common schools embody some of the most recent ideas of individual training. The schools, like the churches, have been able to center on their own special tasks, the socio-recreational needs being taken care of in the Community House.

Planning and zoning are fairly recent civic and community developments. But a community like Winnetka which from the beginning has, without law or regulation, but in accordance with its own ideas of the fitness of things, built its individual properties and the construction of the whole to a general type and plan, may be regarded as having done a real American thing. And now when isolation is no longer possible, Winnetka is readily considering its fit place in the Regional Plan for the Greater Chicago.

Vision Defects of School Children

SPEAKING on the responsibilities of boards of health and boards of education in detecting and correcting vision defects of school children, Lewis H. Carris, Managing Director of the National Committee for the Prevention of Blindness, in a recent address before the annual meeting of the American Public Health Association, pointed out the importance of determining to what extent defects in vision and diseased eye conditions would be discovered by examinations which it is practical to conduct in schools. "In actual practice," he said, "examinations are given by medical examiners, by nurses, by teachers or by a combination of these. According to reports from approximately three hundred cities of over 10,000 population received by the National Committee for the Prevention of Blindness, eye examinations are now being conducted by the following agencies:

In 20 per cent of the cities, the examinations are made by school physicians alone.

In 25 per cent of the cities, the examinations are made by nurses alone.

In 20 per cent of the cities, the examinations are made by physicians and nurses in cooperation.

In 15 per cent of the cities, examinations are made by classroom teachers alone.

In the other 20 per cent of cities, the examinations are made by combinations of the three.

Mr. Carris deplored the lack of any definite standard for making eye examinations and announced that a study looking toward the development of such standards is now being conducted jointly by a Committee of the National Education Association and the American Medical Association with the cooperation of the National Committee for the Prevention of Blindness.

The Prevention of Foundlings

By Julius Levy, M. D.

Director, Division of Child Hygiene, Newark Department of Health; Consultant and Supervising Expert, Bureau of Child Hygiene, New Jersey State Department of Health

INSTITUTIONS do not keep pace with knowledge. Their persistence often interferes with the application of newer knowledge or a changed social attitude. In this way our funds, our energies, and our attention are absorbed by the treatment or amelioration of conditions that really are preventable.

Medicine presents many a worth-while lesson to her sister arts and sciences. The history of typhoid fever is a sufficient illustration. For many years medical attention was directed only to the treatment of the disease, to the writing of an interesting and detailed record of its manifold manifestations, to a recital of its complications and mortality. Then, in text-books and at medical conferences, methods were suggested for the prevention of some of the more serious complications through proper treatment. Finally, with the discovery of its causation and method of transmission, mankind spent its time, its energy, and its money on the prevention of typhoid fever; and, primarily through the purification of water-supplies, typhoid fever, which was so common a generation ago, has become a rare disease. If medical science had continued to devote its thought merely to the amelioration of pain, suffering, and disease, the world would be losing a thousand times each year what it is spending for prevention.

This thought finds another illustration in the work that has been undertaken for the protection of the health of children. Efforts were first directed to those age groups where mortality was highest or to those conditions that presented the most obvious and most immediate cause for sickness and death. A distinct advance was made over previous periods, but a continuation to-day of methods of a generation ago, or even a decade ago, may represent ignorance of, or indifference to, newer knowledge or resources.

Since babies that died during the summer from diarrhoea were usually bottle-fed, social effort was directed to obtaining a clean milk supply or to making modified milk available for poor babies. Only within the last few years have workers throughout practically the whole country realized that the proper way to check the high mortality of babies with summer diarrhoea due to contaminated milk is not by supplying clean milk but by preventing the need for any cows' milk; in short, by keeping the babies breast-fed. *Prevention and not amelioration has become the keynote of modern child hygiene.*

Cannot, then, this thought of prevention be introduced much more generally than has been the case into the problem of the foundling? I know that many of us feel that the foundling, somewhat like poverty, is something that has existed and will exist, for which we, as individuals and as a community, have very little responsibility and surely over which we have very little control. Is this entirely true? There are some foundlings for which our responsibility is apparently indirect and remote. These are the so-called "true foundlings," the infants that are deserted in public places or alleyways and about whose parents nothing is known. Even for this class we shall be able to show later that it is possible to establish methods of pre-

Is It Not Time for a New Deal?

It has been learned that through sympathetic zeal for deserted infants and the establishment of institutions a great increase in the number of abandoned infants came about and that not only illegitimate infants were being entered in asylums and institutions. In one institution in Paris as many as 14 per cent of the infants were of married parents. Is it not time for a new deal? Has not our civilization advanced far enough to warrant a complete change from the methods of the Chinese and the early Romans?

Prevention, not alleviation, must be our purpose; the welding, not disintegration, of family life our accomplishment. The picture of the mother and babe must be as a shrine in our hearts, and the world must show that it accepts mother and baby as a fundamental unit in the family idea, for by the protection of this unit will we perpetuate and develop that which is the very basis of our civilization and its highest product—the family.

vention that will considerably reduce the number of so-called "true foundlings." But the foundling for which we cannot shirk responsibility is the one that is not born but achieved through our methods of dealing with certain classes of mothers and infants.

In a report of a New York institution for foundlings, the admissions are classified under (1) born in, (2) committed, (3) surrendered, (4) accepted, (5) foundlings. Now what are the distinctions in these classes? The infant who is born in an institution and left there by its mother soon after confinement is called the "born in" foundling. The mother is permitted and perhaps assisted to go into the world and leave her child in the institution. For this foundling, I say society is responsible. Then there is the foundling that is committed, which merely means the infant was sent to the institution by some public authority. This foundling, also, we are responsible for; because, since the mother was known to some public or private agency, it is conceivable that some measures might have been devised for preventing this infant from being separated from its mother and sent to the institution. The accepted infant, since its mother is accepted with it, is no foundling at all, at least as long as she remains with it. Then there is the so-called surrendered infant. There is no word that I have met with in connection with the subject of the foundling that so well illustrates the peculiar, distorted attitude that society has taken towards a certain class of mother and infant. This is a type of foundling which the mother brings to the institution and which is accepted by that institution with the understanding that the mother gives up all right to it, either to know of its whereabouts or of its well-being. There is no need to speak of the pity we feel for the mother who has been brought to such circumstances that she can get herself to give up all interest in regard to the welfare of her baby; but surely society is responsible for this type of foundling, in that it encourages and, indeed, is a party to an arrangement which denies the most fundamental instinct of humankind—the attachment and responsibilty of the mother for her young.

Effect Upon Foundlings of Present Methods of Dealing with Them

Now, before discussing how it may be possible to prevent many of these children from becoming foundlings, would it not be well to consider the effect upon the foundlings of our present methods of dealing with them? I have said our *present* methods, though it is hardly worth while to make this distinction, since it is found when we study the history of foundlings that the result of their present treatment does not vary much from that which was found in China in the 11th century or in Italy in the 8th century or in England or France in the 16th or 18th centuries. Out of the deep sympathy of their hearts certain persons established institutions for foundlings. This was a mark of advancement in civilization, because it represented the development of human sympathy. A number of persons could no longer go along a public highway and see with callous eye poor little exposed infants left to die by the roadside, and they could no longer hear with indifference of the many infants smothered and murdered by their mothers. They established the institutions, but it was soon found that though the infants received tender care from solicitous and high-minded women, they died before they were one year old.

Listen to the record from the 11th century to the present day. In Naples, a foundling hospital with 3,000 infants opened a long grave each day, and only 10 of every 100 escaped one of these 365 graves. Of 19,420 children received in the Hospital of Dublin in 20 years, 2,100 remained alive; in Moscow, 7,000 of 37,600. In 1756 England received 14,934 into institutions in four years, of which number 4,400 lived to be apprenticed. In 1871, the Montreal Board of Health reported that of 4,059 infants received from 1865 to 1870, only 292 were alive in January, 1871.

But perhaps you will say that this is from the dark ages; surely no such experience can be reported within the last ten years. The mortality from the eleven largest institutions in New York from 1909 to 1913 was 42 per cent. Of 28,210 children under two years of age, 11,918 died before they reached their birthday, a rate of 422 per 1,000, or five times the average rate of the state.

In a study of an institution for infants for the decade 1900 to 1910, I found that 68 per cent of infants admitted died before the age of one. In 1888, Jacobi, America's great physician and baby specialist, declared to the lady Board of Managers of the Nursery and Child's Hospital that if babies remained in the institution long enough the mortality would be 100 per cent. For this gratuitous advice he was compelled to resign.

But let us come to the present day. In 1914, Dr. Chapin reported that a study of all the infant asylums of the larger cities showed a

mortality from 36 to 75 per cent of admissions.

Finally, I wish to submit a report on the mortality of 1,738 infants under one year of age admitted to a New York institution according to their classification of foundlings, for in this report we shall find not only a repetition of the century-old story of terrible destruction of infant life, but we shall be able to find the reason for it. Of the 1,738 infants, 209 were "born in." Of this number, the mortality during the first month was much lower than for the city as a whole, representing about one-seventh of the first year's mortality, while in the city it was one-third. You will remember that during the first month the mother remained with the infant and nursed it. What happened after the mother left the institution? Of these babies—who, it cannot be claimed were brought to the institution in a moribund, emaciated or diseased condition, but were born there under supervision and had received the best institutional care—over 100, or 48.8 per cent, died before the year was over. The highest mortality is among the "true foundlings," the deserted waifs, 64 per cent. The "surrendered" group do not fare much better, with a mortality of 59 per cent. The "committed" variety lost 45 per cent of their number. But when we come to the "accepted" group, the group where mother and infant are taken together, the fatalities are reduced to 27 per cent.

A Program for a New Deal

I wish to submit for your consideration a program that I know is not complete; indeed, it will ignore entirely the social and legal questions of paternity, marriage or inheritance. It will, however, hasten, I believe, a changed attitude towards the problem of the unmarried mother and her baby and save infant and maternal life.

This plan has now been carried out in the city of Newark for several years and is being adopted throughout the state of New Jersey. It has its basis in the thought that the function of the Department of Health is to protect the health and maintain the life of every infant, and that in dealing with the unmarried mother situation it must make whatever special effort is necessary to keep the new-born baby with its mother, and breast-fed. If these two conditions are met, the high infant mortality rate usually found among illegitimate infants is considerably reduced and, indeed, many trying problems besetting both the mother and the infant are anticipated.

In order to accomplish this purpose, arrangements were made with all the hospitals to notify the Health Department of the admission of every unmarried mother. A representative of the Department then visits the hospital to gather from the girl her entire history, for the purpose of convincing the girl that she can and should nurse her baby and to help her to make this possible. Visits are made to the family or relatives or friends to arrange for the return of the girl with her baby to her family. We have been unusually successful in accomplishing this in a very large percentage of cases. An agreement has been obtained from the hospitals whereby the doctors and internes are instructed not to wean the babies. This has been a considerable step in furthering the program, as it was a very common practice for doctors, at the request of the mothers, to have the babies weaned.

It has been found that a certain number of girls have no relatives to whom they can return, or that in the short time the girls remain at the hospitals arrangements cannot be completed for returning them to their families. In order to carry out our plan and purpose that every baby should be breast-fed and remain with its mother, it was necessary to develop an institution where such girls could remain until such time as the proper plans could be worked out. For this purpose we established a Convalescent Home for Nursing Mothers. The only condition for admission is that the mother is nursing her baby. We have admitted married women as well as unmarried mothers. The girls remain at the Convalescent Home ordinarily not more than three months, during which time they are instructed in personal hygiene, infant care, and the usual household arts. A number of girls are placed as wet-nurses. Others obtain positions with their nursing infants. From the standpoint of infant mortality, it is recognized that the first three months, indeed the first month, is the crucial period; and if the baby can be breast-fed for three months, we have met the fundamental issue from the health standpoint.

After this period, it may be decided to have the infant placed with a foster-mother, the mother remaining with her family or boarding at the same home. Through a system of licensing foster homes, we are able completely to control the boarding out of infants and children and thus prevent the unnecessary separation of infants from their mothers.

I am making no reference to the influence on the girls of this sympathetic and helpful

guidance and assistance. We are very much of the opinion that unmarried mothers and perhaps most of us, are influenced in the same way that children are influenced; that is, they are affected not so much by what we say but by what we do, and the realization that representatives of the government itself are taking such a keen and sympathetic interest in the welfare of their babies inspires them with hope and faith in society and devotion to their babies.

Immediate Results as They Affect the Baby

Results of this work in the fullest sense are difficult to measure, but I am sure we shall be interested in some immediate results as they affect the baby. Ninety per cent of the babies are known to have remained with their mothers at least three months, and approximately 73 per cent at least six months. During the first three months most of the babies were breast-fed. In 1923 about 75 per cent of the mothers returned to their homes with their infants. In Newark, where this work has been most highly developed, the crude infant mortality rate among the illegitimate infants was 59.3. A carefully corrected rate was 79.7. This is about the same as the infant mortality rate for the entire city and about one-half to one-third of the rate reported by most states and countries for their illegitimate infants.

The great value of this program for the unmarried mother and her infant is that it retains for the baby that which counts most in the environment of the infant—its mother.

ACKNOWLEDGMENT.—From a paper read before the 1924 English-Speaking Conference on Infant Welfare at Caxton Hall, Westminster, London.

The Origin of Street Cleaning and Street Lighting in Philadelphia

From the Autobiography of Benjamin Franklin

OUR city [Philadelphia], though laid out with a beautiful regularity, the streets large, straight, and crossing each other at right angles, had the disgrace of suffering those streets to remain long unpaved, and in wet weather the wheels of heavy carriages plowed them into a quagmire, so that it was difficult to cross them; and in dry weather the dust was offensive. I had lived near what was called the Jersey Market, and saw with pain the inhabitants wading in mud while purchasing their provisions. A strip of ground down the middle of that market was at length paved with brick, so that being once in the market they had firm footing; but were often over shoes in dirt to get there. By talking and writing on the subject, I was at length instrumental in getting the street paved with stone between the market and the brick foot pavement, that was on the side next the houses. This for some time gave an easy access to the market dry-shod; but the rest of the street not being paved, whenever a carriage came out of the mud upon this pavement it shook off and left its dirt upon it, and it was soon covered with mire, which was not removed, the city as yet having no scavengers.

After some inquiry I found a poor, industrious man, who was willing to undertake keeping the pavement clean by sweeping it twice a week, carrying off the dirt from before all the neighbors' doors, for the sum of sixpence per month, to be paid by each house. I then wrote and printed a paper setting forth the advantages to the neighborhood that might be obtained from this small expense; the greater ease in keeping our houses clean, so much dirt not being brought in by people's feet; the benefit to the shops by more custom, as buyers could more easily get at them; and by not having in windy weather the dust blown in upon their goods, etc., etc. I sent one of these papers to each house, and in a day or two went round to see who would subscribe an agreement to pay these sixpences; it was unanimously signed and for a time well executed. All the inhabitants of the city were delighted with the cleanliness of the pavement that surrounded the market, it being a convenience to all, and this raised a general desire to have all the streets paved and made the people more willing to submit to a tax for that purpose.

After some time I drew a bill for paving the city and brought it into the Assembly. It was just before I went to England, in 1757, and did not pass till I was gone, and then with an alteration in the mode of assessment which I thought not for the better, but with an additional provision for lighting as well as paving the streets, which was a great improvement. It was by a private person, the late Mr. John Clifton, giving a sample of the utility of lamps, by placing one at his door, that the people were first impressed with the idea of lighting all the city. The honor of this public benefit has also been ascribed to me, but it belongs truly to that gentleman. I did but follow his example, and have only some merit to claim respecting the form of our lamps, as differing from the globe lamps we were at first supplied with from London. They were found inconvenient in these respects: they admitted no air below; the smoke, therefore, did not readily go out above; but circulated in the globe, lodged on its inside, and soon obstructed the light they were intended to afford; giving besides the daily trouble of wiping them clean; and an accidental stroke on one of them would demolish it and render it totally useless. I therefore suggested the composing them of four flat panes, with a long funnel above to draw up the smoke, and crevices admitting the air below to facilitate the ascent of the smoke; by this means they were kept clean and did not grow dark in a few hours, as the London lamps do, but continued bright till morning; and an accidental stroke would generally break but a single pane, easily repaired,

What Is a Sanitary Drinking Fountain?

HERE and there are bits of evidence that the public is beginning to have suspicion of certain types of so-called sanitary drinking fountains. There is a look askance at the vertical jet as the thirsty pedestrian pauses in the park on a hot summer day. He is not quite sure that it is safe to drink at that bubbling stream, for somewhere he has read or heard—he cannot quite remember how the matter is explained—but as he watches a less fastidious type of humanity bending over the low jet, he decides to pass on, and as soon as possible to get some definite information on the subject of the safe public drinking fountain.

After a long period of experimentation, standards have crystallized in the Final Report of the Committee on Sanitary Drinking Fountains of the American Water Works Association, presented at the annual convention last May. This report should be read by every citizen in order that all vagueness may be cleared away and that there may be an intelligent and wide-spread demand for the installation of drinking fountains that will not endanger the health of their users. The report is as follows:

FINAL REPORT OF THE COMMITTEE ON SANITARY DRINKING FOUNTAINS OF THE AMERICAN WATER WORKS ASSOCIATION

The advent of sanitary drinking fountains was the direct result of laws prohibiting the common drinking cup. In 1910 there were few states or municipalities which prohibited the use of the common drinking cup. By 1920 many states recognized the necessity of prohibiting the use of the common cup, and laws for its prohibition were enacted. Eight states passed such laws in 1917 and six more states in 1920. Manufacturers of sanitary equipment recognized readily the lucrative field for especially designed drinking facilities, and during the period from 1910 to date there were about twenty large-scale manufacturers and numerous small dealers offering various types of sanitary drinking fountains to the trade. In the early period of the manufacture of such equipment little attention was given to the public health aspect of the apparatus placed upon the market. No special thought was given, at first, to the sanitary efficacy of the equipment, with the result that many types of fountains were put in service, the use of which was as potentially dangerous in the transmission of infectious diseases as was the common drinking cup. Numerous investigations carried on in the past few years have demonstrated clearly that the straight-jet fountain, permitting the incoming water to pass through a cup or reservoir that is not drained, and other poorly designed apparatus, may result in the transmission of bacteria from one person to another. In the conclusions reached by the committee of the Iowa Section of this Association, in their report of October 23, 1919, definite recommendations are given for the type of fountain that will eliminate opportunity for contamination. These conclusions are endorsed by your committee and are given herewith, in full, as they cover all the essential features of design of operation required in apparatus of this kind:

Conclusions of the Iowa Section

1. All types of drinking fountains with vertical jets are to be condemned.
2. Most types of drinking fountains with slanting jets are to be condemned.
3. To be sanitary, drinking fountains should conform to the following specifications:
   a. The jets shall be slanting.
   b. The orifices of the jets shall be protected in such a manner that they cannot be touched by fingers or lips, or be contaminated by droppings from the mouth, or by splashings from basins beneath the orifices.
   c. The guards of the orifices shall be so made that infectious material from the mouth cannot be deposited upon them.
   d. All fountains shall be so designed that their proper use is self-evident.

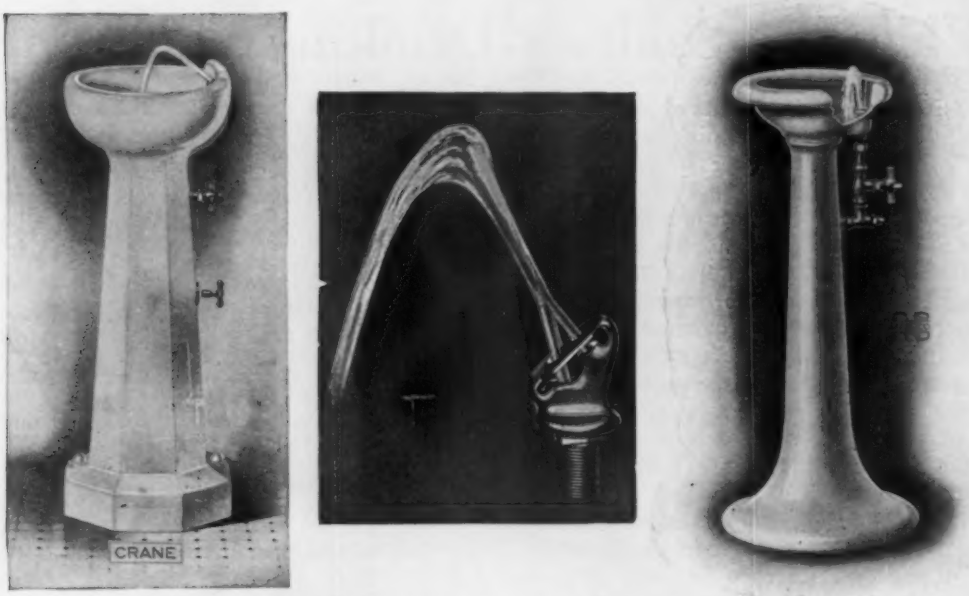
Your committee has devoted its efforts primarily to reviewing the present status of laws which have been enacted to control the installation of equipment of this type. It has considered also the need for future legislation and control to prevent the use of insanitary drinking fountains. At the close of 1921 there were laws or sanitary regulations in many states specifying the use of sanitary drinking fountains. Few states, however, have adopted specifications as to the design of fountains which are efficient or satisfactory types. There is a need still for bringing before the public and many of the health authorities the potential danger that exists in the use of sanitary drinking fountains of many types now offered to the trade.

Section 61 of the Railway Sanitary Code of the United States Public Health Service specifies the kind of fountain permissible. These specifications are as follows:

"Sec. 61. Drinking Fountains.—If drinking fountains of the bubbling type are provided in any railway station, they shall be so made that the drinking is from a free jet projected at an angle to the vertical and not from a jet that is projected vertically or that flows through a filled cup or bowl."

This portion of the code is a decided advance, in attempting to eliminate the installation in railway stations of fountains of dangerous design. The specifications, in our opinion, are not sufficiently complete, however, in that no mention is made of the guards that are to be used, nor is any provision made for protecting the jet from the mouth or fingers of the users.

A review of the trade catalogues of recent date has shown that there is still a great variety of sanitary drinking fountains being offered to the public, a large majority of which are of the insanitary type. Many of these apparatuses in no way meet the requirements set forth by the committee of the Iowa Section, or of Section 61 of



SEVERAL TYPES OF SANITARY DRINKING FOUNTAINS

the Railway Code. This condition may not be as discouraging as it appears, however, due to the fact that many of the manufacturers do not revise their catalogues every year. We are of the opinion, however, that there are still a large number of poorly designed drinking fountains manufactured and sold. This condition will exist until the manufacturers realize that only sanitary fountains of good design are in demand.

During the past year a large number of sanitary fountain installations have been inspected. Less than 10 per cent of the number of fountains inspected were of a design that prevents infection being transmitted directly from one person to another, and only 5 per cent might pass Section 61 of the Railway Code. Not one of these installations could meet the requirements specified by the Iowa Section. This appears to be a serious indictment against the enforcement of health regulations, since in every instance where this condition existed there were laws to prohibit just this situation. As a result of these studies, the following conclusions and recommendations are given:

Conclusions

1. Infections may be transmitted from one person to another from sanitary drinking fountains of the bubbling type with undraining reservoir, or fountains that permit the mouth or hands to come in contact with the surface of the jet.

2. The manufacturers of sanitary fountains as a body do not realize the sanitary significance of the apparatus.

3. Laws on the statute books of many states are not enforced.

Recommendations

1. The Association should adopt the specifications for sanitary drinking fountains recommended by the Iowa Section, October 23, 1919.

2. All sanitary drinking fountains installed in public places should be of the standard design as set forth herein, or of such a design as to fulfill the sanitary requirements made necessary by the improved type.

3. Legislative regulations in all states, where these are not now in force, should specify the type of sanitary fountain to be permitted.

4. Copies of this report should be sent to technical papers having a circulation among manufacturers of drinking fountains, requesting that the report be published in full.

5. Stricter supervision by health authorities of the type of sanitary fountains installed in new buildings, and condemnation of the types considered insanitary.

That types of fountains have been developed to meet the recommendations of this report is evident from the illustrations on this page. The angle jet, the protected orifices, and the sanitary guards are all features of the fountains shown. It is most important that the message of the report given above should "get across" so definitely that no one need ever be in doubt as to the safety of quenching his thirst at a public drinking fountain.

EDITORIAL NOTE.—See also "Digest of Laws Prohibiting the Use of the Common Drinking Cup," compiled October, 1924, published by the General Health Bureau, 542 Fifth Avenue, New York, N. Y.

This Ratio Should Be Reversed

The people of the United States spend annually sixty-five cents per capita on coffins and eleven cents on health service.—*Better Times*, Dec. 1, 1924.

Water-Supply Statistics for Municipalities of Less Than 5,000 Population

Statistics from 3,700 Cities Compiled for Publication in THE AMERICAN CITY and the 1925 Municipal Index

THROUGH the cooperation of municipal water-works officials and the officers of water companies, THE AMERICAN CITY MAGAZINE is able to offer to its readers and to recipients of the 1925 Municipal Index the largest compilation of water-supply statistics that has yet been published. In order to facilitate the distribution of these statistics, all the data for cities of over 5,000 population are being published in the 1925 Municipal Index, and for cities of less than 5,000 population in THE AMERICAN CITY MAGAZINE serially, beginning with the February, 1925, issue.

The tables, in which the cities are arranged alphabetically by states, show whether the water-works are owned by the municipality or by a private company. The source of supply is recorded merely as underground or surface, the former including shallow wells, deep wells, artesian wells, flowing springs, and mountain springs, and the second such sources as rivers, lakes, ponds, canals, and creeks.

The distance of the source from the city is an important matter from the fire protection standpoint as well as from the standpoint of comparison when it comes to capital investment. Storage facilities are described under three heads, namely, reservoirs, stand-pipes, and elevated tanks.

Filtration systems are divided into mechanical or American systems, slow sand filtration or the older type of filtration, and pressure filters, as applied to the mechanical filtration. In examining the entire set of reports, only chlorine and hypochlorite show as American sterilization practice to-day, with liquid chlorine by far the most common method.

In order that some idea of the total investment in pumps may be reached, the total pump capacity in million gallons daily is recorded. In some instances where low-lift pumps are used to move water from a river to a filtration plant and then high-lift pumps are used to force the filtered water through the distribution system, the total pump capacities may give an erroneous idea as to the capacity of the system. Lack of space, however, made it impossible to differentiate in these cases, as the pump capacity is recorded chiefly to show the investment in this important element of the plant.

American cities are noteworthy for their excessive consumption of water. Even communities where industrial uses are not great have consumptions of 500, and some even as high as 1,000 gallons per capita. As far as possible, in these statistics domestic services are differentiated from those supplying stores, factories and industries.

Statistics are given for the number of hydrants in each city and whether they are owned by the municipality, or by the water company. The average rental per hydrant per year is given in those cases where a hydrant is charged to the water company or is credited to the account of a water department. In many cases water companies charge no hydrant rental, as such service is required in their franchises. Unfortunately, in only a few cases are water departments credited with the maintenance of the hydrants, even though it may be a paper account.

The average pressures for water-supplies, as well as the increased pressures for fire service, are given, as this has some bearing on the general type of pipe in use in the community.

The following symbols are used throughout these tables to make it possible to give a greater amount of information in a comparatively small space:

A —American type, rapid or mechanical filtration
B —Brass pipe
C —Concrete pipe
Ch —Sterilization by liquid chlorine
Cl —Cement-lined pipe
Co —Copper pipe
F —Pressure filter
G —Galvanized iron pipe
H —Consumer or householder
Hy—Sterilization with hypochlorite
I —Cast iron pipe
K —Kalamein pipe (also Calamein and Calamine)
L —Lead pipe
Ll —Lead-lined pipe
M —Municipally owned
O —Slow sand filtration
P —Owned by private company
Pp—Stand-pipe
R —Storage or distribution reservoir
Rv—Riveted pipe
S —Surface source of water-supply
St —Steel pipe
T —Elevated tank
Tl —Tin-lined pipe
U —Underground source of water-supply
W —Wood pipe
Wr—Wrought iron pipe

Municipality Ownership of Water works	Population	Source		Storage	Filters	Sterilized	Distribution System			Pipe Sizes Inches		Pump Capacity m. g. d.	Main Supply Metered
		Type	Aver. Miles from City				Total Miles of Main	Kind of Pipe: Mains	Kind of Pipe: Services	Mains	Services		
ALABAMA													
Athens	3,323	U	0.2	RT	No	Ch	24	I	G	3–4	.....	2.0	...
Citronelle M	900	U	0.0	T	No	No	2.5	I St	G	6–8	1¼–2	0.3	No
Cullman M	2,467	SU	1.5	R	A	Ch	8	I	G	4–10	1½	0.5	No
Dora P	1,500	U	1.5	R	....	....	5.5	I St	G	2–6	1½–1¾	1.1	Yes
Eutaw M	1,400	U	1.5	RT	No	No	5.5	I	G	2–6	¾	0.9	No
Fayette M	1,800	S	1.0	RPpT	F	No	3.8	I	G	2–8	.....	.....	No
Fort Payne P	4,000	U	0.1	PpT	.....	Ch	13	I	G	1½–10	1½	1.4	...
Georgiana M	2,000	U	0.0	T	.....	Ch	5.3	I St	G	8	¾–1½	0.3	No
Jasper P	4,500	U	3.3	RPp	F	No	12	I	G	4–12	¾–2	2.2	Yes
Opelika M	4,960	S	2.5	RPp	.....	.....	10	I	.....	4–14	.....	0.3	...
Piedmont M	2,645	U	0.5	R	....	....	4	I	I	8	1½	3.3	No
Prattville M	2,316	U	0.0	RPp	No	No	5.5	I	G	2½–10	¾	0.3	No
Roanoke M	4,000	SU	1.5	RT	F	Ch	3	I	G	4–8	1½–2½	1.4	No
Scottsboro M	2,500	U	4.5	R	No	No	7.5	I	G	2–8	¾	None	No
Slocomb M	800	S	....	RT	.....	.....	0.9	I	G	6	1½–¾	0.7	No
Uniontown	1,350	U	0.0	RPp	No	.....	....	.....	G	1–8	.....	2.1	No
ARIZONA													
Clifton P	2,500	U	3.5	Pp	No	No	15	St	St	1¼–10	1½–¾	1.44	No
Glendale M	2,800	U	0.2	RT	No	No	3.8	I	G	4–12	.....	1.5	No
Morenci P	4,000	SU	7	RPp	No	Hy	25	.....	.....	.....	.....	4.32	Yes
Thatcher & Safford P	2,384	S	7	R	No	No	7	W	G	¾–8	.....	0.2	No
Tombstone P	1,295	U	30	R	No	No	30	Wr	.....	.....	7½–1½	None	Yes
Warren P	2,042	U	7.2	T	No	No	11	St	G	¼–10	1½–¾	None	Yes
ARKANSAS													
Arkadelphia P	4,350	S	0.8	Pp	0	No	11.5	I Wr	G	4–10	.....	0.9	No
Arkansas City P	1,485	U	0.3	R	.....	.....	2	I	.....	6	¾–2	0.4	No
Ashdown M	2,500	U	0.0	RT	No	No	6	I	G	4–10	¾	1.3	No
Augusta M	4,976	U	0.3	T	No	No	4.5	I	G	4–6	.....	.....	No
Benton M	2,933	S	1.5	RT	0	Hy	6	I	G	6–10	¾	1.2	No
Bentonville M	2,313	U	3.5	RPp	No	No	9	I	G	4–8	.....	2.9	No
Berryville M	1,600	U	0.5	RT	No	No	5	I St	G	2–6	½	0.3	No
Clarendon M	3,200	U	0.3	RT	No	No	4	I	G	2–12	.....	0.2	No
Cotton Plant M	2,000	U	....	T	No	No	3	St	G	1–4	1	0.08	No
De Queen M	3,400	U	0.5	RT	No	No	8.9	I G	G	2–6	1	1.2	Yes
Dumas M	.....	U	0.5	T	No	No	2.5	I	G	4	¾	0.2	No
Eudora M	1,500	U	0.0	RT	No	No	3	I	G	4–8	1	1.2	No
Fordyce P	3,500	U	0.5	RPp	No	....	3	I	G	¾–10	¾	0.7	No
Harrisburg P	2,300	U	0.0	RT	No	No	....	.....	G	¾–6	1½–¾	0.3	No
Harrison M	4,000	U	1	R	.....	.....	10	I	G	2–8	¾	0.5	Yes
Horatio M	1,500	U	0.3	T	No	No	2.5	.....	.....	2–8	.....	.....	No
Lake Village M	1,500	U	0.5	T	No	No	3	I	G	4–6	1–1	.....	Yes
Luxora P	1,500	U	0.5	RT	No	No	5	I	G	6	1–2	0.8	...
Mena M	3,441	U	2	Pp	No	No	10	I	G	4–12	½–¾	0.2	No
Monticello M	2,800	U	0.3	R	.....	.....	5	I	G	4–8	.....	0.3	No
Osceola M	1,760	U	0.3	Pp	No	No	20	I St	G	.....	.....	0.5	No
Searcy M	3,500	U	0.0	RPp	No	No	8.5	I	G	4–10	½–¾	0.1	No
Springdale M	2,263	U	3	T	.....	Ch	7	I	G	4–8	¾	.....	No
Wynne M	2,933	U	....	T	No	No	....	I St	G	4–6	½–¾	0.3	Yes
CALIFORNIA													
Antioch M	3,000	SU	1	RT	A	Ch	5.5	IC St	G	3–10	¾	5.3	No
Arcadia M	4,200	U	1.3	R	No	No	47	St	G	2–16	¾–6	0.7	Yes
Arcata P	2,000	SU	2	R	No	No	13	IW St	St	3–7	¾	0.4	No
Benicia P	2,300	S	3	None	No	Hy	16.95	IW Wr	G St	1–8	¾	0.9	Yes
Burbank M	.....	....	....	R	.....	No	150	I St	I	2–12	¾	.....	No
Calipatria P	850	S	0.0	RT	No	Ch	6	St	G	¾–6	¾	.....	...
Chino M	2,600	U	3	R	No	No	12	I	G	2–12	1–2	.....	No
Claremont P	2,800	U	1.5	R	No	No	20	W St	G	4–10	¾–2	.....	No
Cloverdale M	1,000	U	1	R	.....	.....	....	.....	G	2–6	¾–2	0.9	No
Coalinga M	3,000	U	3	R	No	No	15	I	I	2–8	1	1.0	No
Colusa M	3,102	U	0.2	T	No	No	20	I	Wr	4–10	¾–1	.....	...
Corcoran M	1,100	U	0.0	RPp	A	No	8.5	I St	St	2–8	¾–2	3.0	Yes
Corning M	1,500	U	0.2	T	No	No	15	St	G	3–10	¾–4	2.0	No
Dinuba M	4,500	U	0.2	T	.....	.....	12	.....	G	2–10	.....	2.5	No
El Segundo M	3,000	U	0.5	RT	No	.....	20.2	I St	G	2–10	¾	0.42	Yes
Escondido M	4,412	U	1	R	....	....	6	I	.....	6–12	.....	1.3	...
Etna Mills M	1,000	S	2.8	R	No	No	3	Rv	St	2–10	.....	.....	...
Fillmore M	2,100	U	0.5	R	No	No	10.7	St	G	2–10	¾	0.8	No
Fortuna P	988	U	0.5	R	No	No	3.3	I	G	4–10	½–¾	0.1	No
Gilroy M	3,400	SU	12	R	.....	.....	11	I St	G	4–14	.....	4.0	No
Gridley M	2,500	U	0.0	T	No	....	17	I St	G	4–8	¾–2	2.6	No
Hayward M	3,487	U	4	R	No	No	30	IW St	G	2–10	¾	2.2	No
Hollister P	2,781	U	12	R	No	No	3	.....	G	4–8	¾–2	1.0	No
Imperial M	2,100	S	0.5	RPp	No	No	5	I	Wr	4–10	¾	1.7	No
Lakeport M	1,200	U	2.5	RT	No	No	8	I	G	2–10	¾	0.;	No

Consumption		Number of Services		Number of Meters		Per Cent Metered		Meter Rates per 1,000 Gallons		Meters Owned by	Hydrants			Average Pressure lbs. per sq. in.	
Average Daily in 1,000 gals.	Per Capita	Domestic	Industrial	Domestic	Industrial	Domestic	Industrial	Max. Dom.	Min. Ind.		Number	Owned by	Aver. Rental each per year	Domestic	Fire
500	150	600	6	40	6	7	100	30¢	12¢	.....	79	M	.....		
30	33	133	2	133	2	100	100	50¢	30¢	M	20	M	.....	150	124
150	61	504	.....	420	.....	84	.....	40¢	.....	M	75	M	$35	43	43
100	67	182	4	171	4	94	100	50¢	10¢	P	28	P	None	60	100
50	35	220	0	0	0	0	0	.....	.....	M	37	M	.....	95	95
30	17	200	.....	150	.....	75	.....	50¢	.....	M	20	M	.....	85	120
450	112	600	5	0	0	0	0	.....	.....	.....	54	P	.....	50	54
36	18	175	10	50	10	29	100	33¢	25¢	M	9	M	.....	90	.....
280	62	720	32	750	.....	100	.....	40¢	8¢	P	68	P	$50	.....	.....
275	55	725	.....	525	.....	73	35	25¢	7¢	M	83	M	$25	50	90
39	15	346	1	260	.....	75	.....	.....	12.5¢	M	31	M	.....	50	120
140	60	210	.....	135	.....	65	.....	50¢	22¢	M	40	M	.....	80	90
250	62	400	9	320	8	80	95	44¢	12¢	M	59	M	.....	78	78
88	35	250	1	15	.....	6	.....	25¢	15¢	M	10	M	Free	40	95
30	37	.....	3	3	3	.....	100	50¢	20¢	H	12	M	.....	73	73
100	74	250	.....	248	.....	99	.....	35¢	17.5¢	.....	33	M	.....	50	100
300	120	450	30	400	30	89	100	$1.90	27¢	P	50	M	$30	43	100
350	125	875	.....	380	.....	44	100	22½¢	10½¢	M	35	M	$13.71	75	75
2,500	625	1,250	80	800	80	64	100	$1.50	27½¢	P	2	P	$2.50	35	100
190	159	350	.....	.....	.....	.....	.....	.....	.....	.....	20	M	.....	150	150
300	231	300	10	300	10	100	100	$1.00	30¢	P	39	M	None	40	40
100	49	600	.....	600	.....	100	.....	$1.50	.....	P	87	P	$4.14	150	150
550	126	678	.....	406	.....	60	.....	57¢	15¢	P	47	P	$40	125	125
200	135	300	5	3	5	1	100	50¢	15¢	P	25	P	$36	37	100
.....	.....	300	.....	300	.....	100	.....	.....	.....	M	82	M	None	45	60
40	8	175	10	140	10	80	100	30¢	30¢	M	26	M	None	45	110
150	51	300	15	300	15	100	100	40¢	10¢	M	73	M	.....	40	40
65	28	360	.....	120	.....	33	.....	47¢	13¢	H	60	M	.....	60	125
35	22	180	.....	160	.....	89	.....	50¢	30¢	H	40	M	.....	60	85
70	22	430	4	430	4	100	100	.....	.....	M	70	M	None	80	.....
50	25	105	16	0	0	0	0	.....	.....	.....	5	M	.....	40	100
100	29	500	2	100	2	20	100	50¢	25¢	M	82	M	None	20	20
45	.....	190	.....	.....	.....	.....	.....	$1.50	30¢	.....	18	M	$33.33	50	100
125	84	168	11	0	0	0	0	.....	.....	.....	18	M	None	40	50
100	29	350	2	346	0	99	0	60¢	25¢	P	34	P	$65.28	45	100
.....	.....	280	5	1	5	.....	100	60¢	25¢	P	4	M	None	65	85
105	26	610	0	533	0	87	.....	35¢	15¢	M	82	M	None	65	65
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100	.....
100	67	200	0	200	0	100	0	40¢	.....	MH	40	M	.....	.....	.....
.....	.....	200	30	20	5	10	10	40¢	25¢	H	10	M	.....	60	90
50	15	360	3	354	3	99	100	50¢	15¢	M	62	M	None	35	75
200	72	560	90	470	60	84	66	40¢	30¢	M	30	M	None	100	65
.....	.....	200	100	100	25	50	25	20¢	12¢	H	50	M	Free	75	120
120	34	502	10	502	10	100	100	40¢	25¢	M	68	M	None	60	60
100	44	330	6	230	6	70	100	71.6¢	12.5¢	.....	70	M	.....	60	120
200	68	425	25	350	25	83	100	50¢	.....	H	50	M	None	60	60
300	100	815	1	599	1	73	100	20¢	9.4¢	M	51	P	.....	40	.....
3,000	715	1,200	500	1,200	.....	100	.....	14¢	4.7¢	M	170	M	$10	45	125
250	125	650	10	465	10	72	100	35¢	20¢	P	32	P	Free	75	90
265	115	492	14	588	14	100	100	74¢	44¢	P	47	M	$24	60	110
2,000	.....	3,800	200	3,800	200	100	100	16.8¢	6.7¢	M	89	M	.....	50	50
180	21	200	75	1	.....	.....	.....	25¢	25¢	P	6	P	$12	135	150
400	154	640	4	640	4	100	100	17¢	4¢	M	.....	M	.....	25	45
910	330	620	16	620	16	100	100	34¢	13.4¢	P	55	P	$24	60	80
200	100	250	.....	200	.....	80	.....	15¢	15¢	M	40	M	.....	100	100
.....	.....	750	.....	750	.....	100	.....	$1.20	.....	M	60	M	.....	50	50
.....	.....	600	.....	400	.....	67	.....	13.4¢	7¢	M	112	M	.....	40	100
500	450	320	50	5	6	2	12	84¢	6.7¢	M	40	M	.....	50	120
350	230	450	10	300	10	67	100	25¢	10¢	M	142	M	None	40	65
1,000	220	1,075	25	1,050	25	86	100	14.9¢	9.4¢	M	116	M	None	55	125
133	44	690	.....	677	.....	98	.....	25¢	.....	M	75	M	$6	60	120
.....	.....	800	.....	800	.....	100	.....	5¢	5¢	M	94	.....	.....	50	50
300	143	150	2	0	0	0	0	.....	.....	.....	16	M	.....	80	80
50	51	578	.....	553	.....	96	.....	20¢	13.3¢	M	44	M	.....	86	86
640	190	218	.....	120	.....	55	.....	45¢	22.5¢	P	16	P	$16	80	.....
.....	.....	925	25	830	25	90	100	10¢	7¢	M	82	M	No	80	80
250	100	600	100	600	25	100	25	15¢	10¢	M	70	M	None	35	52
400	115	1,725	8	1,725	8	100	100	45¢	34¢	M	89	M	$29.04	43	90
250	90	900	.....	900	.....	100	100	42¢	20¢	P	60	M	.....	65	65
450	224	400	.....	400	.....	100	.....	10¢	10¢	M	56	M	$12	45	45
10	8	333	.....	333	.....	100	.....	25¢	20¢	M	29	M	None	45	45
														60	95

Municipality Ownership of Water works	Population	Source		Storage	Filters	Sterilized	Distribution System			Pipe Sizes Inches		Pump Capacity m. g. d.	Main Supply Metered
		Type	Aver. Miles from City				Total Miles of Main	Kind of Pipe		Mains	Services		
								Mains	Services				
CALIF. (Cont.)													
La Mesa.....P	1,800	S	60	R	No	No	3	I St	G	1¼-6	6	.....	Yes
Lindsay.....M	2,576	U	0.0	RT	No	No	10	St	G	4-10	¾	.....	No
Livermore.....P	1,916	U	6	R	.....	.....	18	I St	.....	2-11	¾	0.6	No
Lodi.....M	4,850	U	0.2	Pp	No	No	20	I St	.....	2-12	¾	6.0	No
Los Gatos.....P	2,317	SU	2	R	A	Ch	20.45	I RvWr	Wr	1-10	¾-1	2.5	No
Madera.....M	4,000	U	0.0	Pp	No	No	24	I St	G	2-10	¾-4	2.9	No
McCloud.....P	2,000	U	4	RPp	No	.....	8	W St	W Wr	8-16	.....	2.16	No
Manhattan Beach.....M	2,000	U	0.5	RT	No	.....	40	I	G	¾-1	.....	.....	Yes
Maricopa.....P	1,200	U	.....	T	.....	Ch	25	St	I	¾-2	½	None	No
Mountain View.....M	2,500	U	.....	T	.....	.....	10	St	G	2-10	¾-2	0.2	No
Oakdale.....M	1,906	U	1	R	No	No	10	St	G	4-10	¾-2	0.7	No
Paso Robles.....M	3,500	S	0.3	R	.....	.....	20	Wr	G	¾-8	.....	10.0	...
Pinole & Hercules.....P	2,000	SU	7	R	No	Ch	11	I St	G	¾-8	¾	1.1	Yes
Placerville.....M	2,746	U	30	R	.....	.....	3.5	W	.....	7	.....	.....	No.
Pleasanton.....M	2,296	U	0.5	RPp	No	No	5.5	I	I	2-10	¾-2	0.7	No
Red Bluff.....M	4,000	SU	10	T	No	Ch	12	I St	G	4-12	¾-1	2.5	No
Redding.....P	3,500	S	2	RPp	No	Ch	18.03	IW St	Wr StW	3-18	¾-1	3.3	Yes
Reedley.....M	2,447	U	0.1	Pp	No	No	14	Wr	Wr	2-8	¾-4	5.4	No
Rio Vista.....M	1,600	U	0.0	RT	No	No	4.5	I	G	4	¾	.....	No
St. Helena.....M	1,603	SU	1	RT	No	No	13.5	I	G	¾-12	.....	0.7	No
Sanger.....M	2,578	U	0.0	Pp	No	No	8.5	St	G	1¼-6	.....	1.3	No
San Jacinto.....M	1,367	U	0.5	R	No	No	14	St	G	2-10	¾-2	.....	No
Santa Maria.....M	4,900	U	0.0	Pp	No	No	21	.....	.....	1¼-10	.....	1.4	...
Sausalito.....M	2,790	U	10	Pp	.....	.....	30	.....	.....	4-10	¾	8.6	...
Selma.....P	3,158	U	0.3	R	No	.....	25	I St	.....	2-8	¾-1½	7.2	...
Sonora.....P	2,029	S	50	R	No	Ch	8.5	IW St	I	1-12	¾	None	No
Spreckles.....P	1,000	U	0.3	RT	No	No	5.5	I	Wr	2¾-12	¾-1	1.0	No
Tracy.....M	3,000	U	0.5	Pp	No	No	20	St	G	4-10	¾	2.3	No
Tulare.....M	3,539	U	0.3	Pp	No	No	26	St	G	¾-10	¾	3.0	...
Ukiah.....M	2,305	U	1	R	No	No	8	I	I	2-10	.....	1.3	...
Upland.....M	4,000	U	6	R	No	No	10	St	St Wr	2-10	¾	1.3	Yes
Westwood.....P	4,356	SU	2	R	No	No	18	IW St	G	2-14	¾-1½	14.4	No
Willits.....P	2,050	S	6	R	No	Ch	20	St	G	6-8	¾-2	None	No
Winters.....M	1,533	U	....	T	No	No	8	I St	G	4-6	.....	0.9	No
COLORADO													
Aguilar.....M	2,500	U	7.5	PpT	.....	.....	....	.....	G	1-8	½-¾	.....	Yes
Akron.....M	1,400	U	0.0	RPp	.....	.....	5.0	I	.....	4-10	4-6	0.05	No
Alamosa.....M	3,171	U	0.3	RPpT	No	No	13.0	.....	L	5-16	.....	1.7	No
Aspen.....P	1,834	S	3.0	R	.....	.....	10.0	IW	G	4-8	¾	.....	No
Ault.....M	1,000	U	0.3	None	No	No	2.9	I St	G	4-6	¾	0.5	Yes
Breckenridge.....M	800	....	1.5	R	.....	.....	4.0	I	.....	4-12	.....	.....	...
Brush.....M	2,200	U	0.1	T	No	No	8.0	I	GL	2-10	¾-2	1.4	Yes
Canon City.....M	4,551	S	8.0	R	O	Ch	19.0	I	G	4-16	¾	6.0	No
Cripple Creek.....P	2,325	S	9.0	R	No	.....	24.0	W	G	4-12	.....	None	...
Delta.....M	2,623	S	19.0	R	.....	.....	49.0	St	.....	2-12	.....	.....	...
Fort Lupton.....M	1,800	U	0.3	T	No	No	3.9	I	GL	4-10	¾-¾	3.2	No
Fort Morgan.....M	3,818	U	0.0	Pp	No	No	12.0	I	IL	4-10	¾-1	3.0	No
Fowler.....M	1,000	U	....	RPp	No	No	3.8	I	GI	2-8	.....	None	Yes
Georgetown.....M	450	S	10.0	R	.....	.....	3.0	I	LI	3-6	¾-1	None	...
Golden.....M	2,484	S	13.0	R	.....	.....	7.0	WV	I	2-16	.....	.....	No
Gunnison.....M	1,500	S	1.0	R	O	.....	6.0	I	G	4-12	.....	1.0	Yes
Holyoke.....M	1,400	U	0.0	RPp	.....	.....	7.5	.....	G	4-6	.....	0.4	...
Lafayette.....M	1,892	S	9.0	Pp	O	.....	9.0	I	G	.....	½-¾	None	No
Lamar.....M	2,512	U	13.0	R	O	.....	22.0	I	I	4-12	.....	.....	Yes
Las Animas.....M	2,252	U	1.0	Pp	.....	.....	10.0	I	G	4-12	.....	2.0	...
Louisville.....M	1,706	S	2.5	R	O	.....	4.0	I	G	4-12	¾	.....	...
Montrose.....M	4,000	S	14.0	RPp	.....	Ch	15.0	I St	GL	1¼-12	¾-1	1.0	Yes
Paonia.....M	1,000	U	4.5	R	.....	.....	2.5	I	G	4-8	¾	.....	...
Rifle.....M	885	S	6.0	R	No	No	11.0	IW	L	4-8	¾-1¼	None	No
Rocky Ford.....M	3,746	U	1.0	RPp	A	Ch Hy	14.0	.....	St I	2-14	¾-1¼	.....	...
Salida.....M	4,689	U	2.0	R	No	No	21.0	IW St	G	4-16	¾-4	None	No
Steamboat Springs.....M	1,200	S	12.0	R	.....	.....	8.0	IW	G	2-14	¾	.....	...
Sugar City.....M	800	SU	5.0	T	No	No	3.0	I	G	4-8	¾-1½	None	Yes
Victor.....M	1,777	S	7.0	RT	.....	.. ..	10.0	W	G	1¼-12	¾	.....	...
Windsor.....M	2,000	S	40.0	T	.....	.....	6.0	I	G	¾-6	¾	.....	Yes
Wray.....M	2,500	U	....	R	No	No	12.5	I St	G	2-6	¾	0.4	No
Yuma.....M	1,500	U	0.0	RPp	No	No	4.0	I	G	2-6	¾-1¼	0.7	Yes
CONNECTICUT													
Baltic.....P	1,800	S	1.0	R	No	No	3.5	I	G	2-16	¾	None	No
Collinsville.....P	3,009	U	2.5	R	A	.....	12	IG St	G	1-10	¾-1¼	.....	Yes
Ellington.....P	2,127	U	2.0	None	No	No	2	IW	G	2-3	.....	.....	No
Farmington.....P	1,200	U	¾	R	O	No	5.0	I	I	4-10	¾-2	None	No
Jewett City.....P	3,196	SU	5.0	R	.....	.....	10.2	IW	G	6-12	1¼	None	No
Lakeville.....P	1,500	U	2.0	R	No	No	8.5	I	.....	4-10	1¼	None	...

Consumption		Number of Services		Number of Meters		Per Cent Metered		Meter Rates per 1,000 Gallons		Meters Owned by	Hydrants			Average Pressure lbs. per sq. in.	
Average Daily in 1,000 gals.	Per Capita	Domestic	Industrial	Domestic	Industrial	Domestic	Industrial	Max. Dom.	Min. Ind.		Number	Owned by	Aver. Rental each per year	Domestic	Fire
20	11	315	0	315	0	100	.....	16.5¢	....	M	20	M	No	35	35
.....	....	960	.. ..	800	.....	84	.....	12¢	10¢	M	110	M	None	35	95
350	183	600	.....	503	.....	84	.....	20¢	....	P	45	M	24	46	65
700	144	1,800	300	50	4	28	1	7¢	7¢	M	140	M	$5	50	80
800	340	1,472	.....	1,373	.....	93	.....	20¢	12¢	P	60	P	$21	100	100
2,000	500	1,300	100	0	0	0	0	.....	.....	.....	105	M	.....	50	110
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	299	P	None	100	250
1,000	500	900	20	900	20	100	100	30¢	12¢	M	150	M	.....	50	50
25	21	378	.....	378	.....	100	.....	$4.03	....	P	37	P	$60	32	85
.....	....	750	.....	750	.....	100	.....	15¢	10¢	H	45	M	.....	47	160
300	158	500	75	500	75	100	100	20¢	6¢	M	62	M	.....	40	125
1,000	286	872	.....	650	.....	75	.....	27¢	10.8¢	M	58	M	.....	50	50
170	85	380	2	280	2	74	100	27¢	26¢	P	30	P	$3	45	120
.....	....	500	10	4	.....	1	.....	$1.25	20¢	H	18	M	.....	47	150
295	129	421	.....	392	.....	93	.....	15¢	....	M	98	M	None	61	110
1,000	250	1,000	.....	25	.....	3	.....	23¢	6.7¢	M	80	M	None	30	.....
920	261	1,034	.....	215	.....	21	.....	27¢	....	P	57	P	$140	62	62
600	244	800	125	800	62	100	50	15¢	10¢	M	82	M	None	50	130
150	94	500	50	300	0	100	0	30¢	15¢	M	39	M	None	65	85
120	75	400	.....	420	.....	100	.....	30¢	22¢	M	45	M	$20	53	65
325	126	670	.....	650	.....	97	.....	21¢	5¢	M	77	M	.....	45	60
.....	.....	250	4	225	4	90	100	30¢	.....	M	50	M	.....	22	40
.....	....	1,100	.....	800	.....	73	.....	.....	.....	.....	65	.....	.....	60	.....
100	36	720	.....	720	.....	.....	.....	50¢	40¢	M	170	M	$3.60	70	87
2,000	634	575	25	.....	25	.....	100	.....	.....	.....	25	.....	.....	45	80
1,450	715	638	2	4	0	.....	0	34¢	7¢	P	49	M	$12	83	140
5,760	.....	250	1	0	0	.....	.....	.....	.....	.....	49	P	.....	50	110
300	100	600	8	600	8	100	100	15¢	15¢	H	60	M	.....	56	80
1,500	424	1,280	50	25	50	2	100	15¢	8¢	M	180	M	$3	50	125
600	255	800	.....	630	.....	79	.....	24¢	14¢	.....	50	M	.....	40	85
700	175	950	50	950	50	100	100	24¢	14.7¢	M	70	M	$12	90	90
3,000	690	600	.....	0	.....	.....	.....	Free	Free	.....	350	P	.....	50	120
2,500	.....	285	52	270	52	60	100	34¢	6.7¢	P	38	M	$2	80	80
200	131	275	8	260	8	95	100	25¢	10¢	M	28	M	.....	40	40
45	18	300	.....	290	.....	97	.....	50¢	10¢	H	27	M	.....	90	100
28	20	395	.....	318	.....	95	.....	.....	7¢	M	35	M	.....	25	32
350	115	358	.....	350	.....	98	.....	50¢	8¢	M	105	M	.....	62	72
.....	....	300	None	None	None	.....	.....	.....	.....	.....	54	P	$20	95	125
60	60	245	None	173	None	71	.....	10¢	.....	M	18	M	$25	50	60
15	9	240	.....	.....	.....	.....	.....	.....	.....	.....	33	.....	.....	145	145
311	141	548	1	239	1	44	100	15¢	10¢	M	52	M	.....	40	.....
2,500	294	970	30	.....	30	.....	100	15¢	7¢	M	77	M	$20	60	100
750	321	1,762	.....	.....	.....	.....	.....	.....	.....	P	151	.....	.....	150	.....
1,000	380	825	5	.....	2	.....	40	12¢	3¢	H	72	M	.....	92	90
260	144	352	.....	2	18	6	.....	60¢	....	M	45	M	.....	46	78
1,527	396	1,251	.....	30	.....	12	.....	25¢	5¢	M	72	M	$25	40	100
30	30	310	10	300	10	97	100	$1.50	40¢	M	22	.....	.....	48	48
.....	.....	300	2	.....	.....	.....	.....	.....	.....	.....	30	M	$0.75	40	115
800	321	674	.....	50	.....	7	.....	30¢	15¢	H	29	M	.....	135	135
486	325	479	.....	.....	.....	.....	.....	32¢	12¢	.....	65	M	.....	80	100
.....	.....	188	.....	180	.....	96	.....	.....	.....	H	29	M	.....	30	75
300	158	380	4	13	4	3	100	32¢	10¢	M	48	M	.....	45	98
375	149	785	.....	785	.....	100	.....	20¢	.....	M	91	M	.....	65	65
400	178	128	.....	.....	.....	.....	.....	.....	.....	.....	92	.....	.....	55	125
.....	.....	500	3	.....	.....	.....	.....	.....	.....	.....	30	M	.....	100	100
1,500	375	1,200	7	205	12	17	100	30¢	10¢	H	64	M	None	95	95
.....	.....	300	100	.....	.....	.....	.....	50¢	10¢	MH	29	M	.....	92	92
.....	.....	233	1	None	.....	.....	.....	.....	.....	.....	34	M	None	98	98
250	67	860	.....	850	.....	99	.....	$1.50	10¢	.....	72	M	.....	60	100
800	171	1,600	.....	None	30	.....	.....	32¢	12¢	M	67	M	None	60	72
300	250	322	.....	3	.....	1	.....	17¢	10¢	.....	32	M	None	50	108
.....	.....	300	.....	.....	.....	.....	.....	.....	.....	.....	46	M	.....	12	.....
400	225	600	2	.....	.....	.....	.....	.....	.....	.....	28	M	.....	115	130
19	95	360	35	360	35	100	100	3¢	3¢	M	23	M	None	50	150
200	80	470	8	470	8	100	100	50¢	10¢	H	68	M	None	60	60
105	70	325	25	100	25	31	100	17¢	10¢	M	25	M	.....	35	40
.....	.....	1,727	.....	None	.....	.....	.....	.....	.....	.....	52	H	$25	76	76
50	17	653	.....	51	.....	7	.....	40¢	.....	PH	16	P	$25	50	57
6	3	75	.....	.....	.....	.....	.....	.....	.....	.....	No	.....	.....	60	80
150	125	191	1	1	.....	1	.....	10¢	.....	P	42	P	$43	65	70
200	63	249	9	.....	9	.....	100	.....	7¢	P	60	P	$25	120	120
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35	P	$8.75	145	145

Municipality Ownership of Water works	Population	Source: Type	Source: Aver. Miles from City	Storage	Filters	Sterilised	Distribution System: Total Miles of Main	Distribution System: Kind of Pipe: Mains	Distribution System: Kind of Pipe: Services	Pipe Sizes Inches: Mains	Pipe Sizes Inches: Services	Pump Capacity m. g. d.	Main Supply Metered
CONN. (Cont.)													
Lakeville.....P	1,500	U	2.0	R	No	No	8.5	I	.....	4–10	1¼	None	....
Litchfield.....P	3,180	S	5.0	.....	.....	.....	10.5	I	G	4–8	.....	0.3	No
Newington.....M	2,381	S	12.0	R	O	Ch	7	.....	G	1–10	1	.....	...
Norfolk.....P	1,229	S	3.3	None	No	No	12.0	I	G	4–12	.....	None	No
North Canaan.....P	1,933	U	1.5	R	No	No	13	I St	G	1–6	1–1¼	0.3	No
Plainville.....P	4,114	SU	2.0	RPp	No	.....	13.6	IC	G	4–12	¾–2	0.7	No
Portland.....P	3,644	S	5.0	R	No	.....	17.0	I	IG	4–12	.....	None	No
Sharon.....P	1,585	S	1.8	None	O	.....	8.0	St Cl	G	4–8	¾	None	No
South Coventry.....P	1,632	S	0.5	None	No	Ch	1.3	I	L	6–8	½–1	None	No
Terryville.....P	2,600	SU	1.5	R	No	Ch	12.5	I Cl G	G	1–8	1–1½	0.3	No
Unionville.....P	2,090	S	2.0	R	No	No	5.0	IC	G	4–10	¾	None	No
Washington.....P	1,619	U	1.0	R	No	No	1.3	I	G	2–6	¾	0.13	No
Woodbury.....P	1,698	S	3.0	R	.....	None	4.0	I	G	4–6	.....	None	No
DELAWARE													
Clayton.....M	1,000	U	0.0	Pp	.....	.....	1.0	.....	.....	2–8	.....	.....	Yes
Georgetown.....P	2,000	U	....	Pp	No	.....	....	I	.....	4–10	¾	0.8	No
Harrington.....M	1,800	U	0.3	Pp	.....	.....	3.0	I	GL	4–6	¾	0.1	No
Milford.....M	2,703	U	....	Pp	.....	.....	4.0	I	G	4–10	.....	3.8	...
Newport.....M	1,000	U	0.3	T	.....	.....	2.0	I	.....	4–8	¾	0.3	No
Smyrna.....M	1,843	U	0.5	Pp	.....	.....	5.5	I	I	2–8	¾–1	0.4	No
FLORIDA													
Apopka.....P	1,091	U	0.0	T	No	.....	9.0	St	G	¾–6	¾–2	0.01	No
Arcadia.....M	3,479	U	0.8	RPp	No	No	7.0	I	G	4–8	.....	1.4	No
Auburndale.....M	2,000	U	....	T	.....	.....	9.0	I	G	2–8	¾	.....	No
Clearwater.....M	2,927	U	0.0	T	No	No	21.0	I St	G	1¼–14	¾–2	1.3	No
De Funiak Springs.....M	2,097	U	....	RT	No	No	6.0	I St	G	1–10	¾	0.8	No
Dunnellon.....M	1,500	U	0.0	T	No	No	....	I St	G	4–8	2	1.3	No
Eustis.....P	1,564	U	0.3	Pp	.....	.....	4.0	.....	I	4–8	.....	.....	No
Fort Barrancas.....M	.....	U	0.0	RPpT	No	No	2.0	I	G	½–6	.....	.....	No
Fort Pierce.....M	4,500	U	0.1	RPp	No	.....	....	.....	.....	6–10	.....	1.5	Yes
Green Cove Springs.....M	2,093	U	0.3	PpT	No	No	1.5	I	GI	¾–6	1¼–4	3.3	No
Jasper.....M	2,000	U	0.5	RT	No	No	2.0	I	IG	½–6	.....	.....	No
Kissimee.....M	3,000	U	....	RPp	No	.....	4.0	I	G	4–8	.....	2.2	No
Lake City.....M	4,500	U	0.5	RPp	No	No	4.3	I	G	6–10	.....	2.9	No
Lake Helen.....M	1,000	U	0.5	.....	No	.....	3.0	G	G	¾–6	¾	.....	No
Live Oak.....M	3,103	U	0.3	RT	.....	.....	3.0	I Wr	.....	4–10	.....	0.5	No
Madison.....M	1,560	U	0.3	RPp	No	....	5.0	I	G	4–12	½–2	2.1	No
Miami Beach.....M	3,000	U	4.0	T	.....	.....	18.0	IW St	GL	6–16	¾	1.7	No
Monticello.....M	2,203	U	0.3	RPp	.....	.....	4.0	.....	.....	4–8	.....	.....	...
New Smyrna.....M	4,000	U	3.5	RT	No	No	16	I	G	2–8	.....	0.5	No
Ocala.....M	4,914	U	0.0	Pp	No	.....	12.0	I	G	4–10	.....	2.7	Yes
Palmetto.....M	3,000	U	0.2	RT	No	.....	49.0	I	G	2–8	¾–3	1.4	No
Punta Gorda.....M	1,500	U	0.0	T	No	No	3.0	I	G	4–6	¾	None	Yes
Starke.....M	2,500	U	0.0	RT	No	No	4.0	I	G	4–8	½–2	1.4	No
Wauchula.....M	3,200	....	0.5	RT	No	No	2.0	I	G	½–1	¾	1.0	No
Winter Garden.....M	1,500	....	0.0	T	No	No	8.0	.....	G	¾–6	.....	0.5	No
GEORGIA													
Acworth.....M	2,638	U	1.3	RPpT	No	No	2.0	I	G	6–8	½–¾	0.07	No
Adel.....M	3,355	U	....	RPp	.....	.....	5.0	I	G	2–8	.....	0.5	No
Arlington.....M	1,500	U	0.0	RT	No	No	4.0	I	G	8	.....	1.1	No
Blakely.....M	2,084	U	0.1	RT	No	No	7.0	I St	G	2–8	½–¾	1.4	No
Blue Ridge.....M	1,000	S	2.0	RPp	No	Ch	3.0	I	G	2½–8	½–1	.....	No
Buena Vista.....M	2,180	U	0.5	RPp	No	No	3.0	IG	GI	2–8	.....	1.4	No
Carrollton.....M	4,363	S	1.3	RPp	O	Hy	7.0	I	G	4–10	.....	3.9	No
Cochran.....M	2,021	U	0.0	RPp	.....	.....	7.0	I	.....	4–10	.....	1.2	No
Colquitt.....M	1,000	U	0.4	Pp	No	No	1.5	I	I	4–8	.....	0.7	No
Conyers.....M	2,000	U	0.5	RT	No	No	6.0	.....	G	¾–1½	6–10	1.8	No
Covington.....M	3,500	S	0.3	RPp	O	Ch	10.0	I St	G	¾–10	.....	5.8	No
Dawson.....M	3,504	U	0.5	RPp	.....	.....	6.0	I	.....	6–10	.....	1.4	No
Doe Run.....M	750	U	....	RT	No	No	3.5	I	G	8	¾	1.9	No
Donalsonville.....M	1,500	U	....	RT	No	No	3	I	G	.....	.....	0.7	No
Douglasville.....M	2,159	S	1.5	RPp	O	.....	7.0	I	.....	1½–8	.....	0.3	No
Eastman.....M	3,000	U	0.0	RPp	No	No	....	.....	G	2–8	¾–1¼	1.3	No
Fort Valley.....M	3,223	U	0.1	RPp	.....	No	9.0	I	G	4–10	.....	1.0	No
Grantville.....M	1,500	U	0.3	RPpT	No	No	2.0	I St	G	1½–6	.....	0.07	No
Greensboro.....M	2,128	SU	0.5	RPp	O	.....	7.0	I	G	4–10	½–2	0.6	No
Haslehurst.....M	1,385	U	0.0	RT	No	No	4.0	I St	G	8	2	0.4	No
Jackson.....M	2,027	S	0.1	RT	O	Ch	9.0	I	G	¾–2	.....	2.1	No
Jefferson.....M	1,800	S	0.3	RT	A	Ch	12.0	I St	G	1½–8	¾	1.2	No
Jonesboro.....M	1,200	....	....	RPpT	.....	.....	2.0	I	GI	1½–6	.....	0.8	No
Lawrenceville.....M	2,500	U	0.8	RPp	No	No	7.0	I	G	3–8	½–¾	1.4	No
Lindale.....P	4,000	U	0.5	R	No	No	14.0	I	G	6–12	¾	.....	No
Louisville.....M	2,156	U	0.8	RPp	.....	.....	7.0	I St	G	4–8	.....	0.9	No
Meigs.....M	1,500	U	4.0	RT	No	No	2.3	I	G	6–10	.....	0.9	No
Monroe.....M	3,211	S	1.5	RPp	A	.....	8.0	I	G	6–10	1½	3.3	No

Consumption		Number of Services		Number of Meters		Per Cent Metered		Meter Rates per 1,000 Gallons		Meters Owned by	Hydrants			Average Pressure lbs. per sq. in.	
Average Daily in 1,000 gals.	Per Capita	Domestic	Industrial	Domestic	Industrial	Domestic	Industrial	Max. Dom.	Min. Ind.		Number	Owned by	Aver. Rental each per year	Domestic	Fire
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35	P	$8.75	145	145
.....	.....	235	10	None	None	.....	.....	.....	.....	P	49	P	$21.75	80	80
.....	.....	100	1	100	1	100	100	33¢	33¢	M	.....	.....	.....	90	90
.....	.....	340	.....	None	None	.....	.....	.....	.....	.....	65	P	$20	120	120
150	77	287	15	5	.....	2	.....	.....	.....	P	16	P	$10	80	80
350	85	627	14	678	12	100	86	33¢	15¢	P	63	P	$25	105	105
200	55	685	10	None	10	.....	100	.....	15¢	.....	87	P	$30	85	85
.....	.....	148	None	None	.....	.....	.....	.....	.....	.....	23	P	$21	.....	.....
100	62	36	.....	None	.....	.....	.....	.....	.....	.....	12	P	None	10	.....
150	58	450	2	25	2	6	100	35¢	20¢	P	30	P	$22.50	75	75
.....	.....	250	12	None	12	.....	100		13¢	P	35	P	$25	.....	85
20	12	35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	163	.....	None	.....	.....	.....	.....	.....	.....	23	P	$14	55	55
7	7	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	M	.....	90	.....
50	25	175	.....	.....	3	.....	.....	30¢	30¢	H	55	P	$25	45	45
100	56	100	3	.....	3	.....	100	.....	30¢	M	29	M	$15	40	50
100	37	550	10	6	10	1	100	30¢	19¢	M	69	M	$21.72	50	90
15	15	100	2	100	2	100	100	50¢	50¢	H	20	M	.....	35	35
.....	.....	575	.....	.....	4	.....	.....	.....	.....	.....	35	M	.....	60	60
35	32	221	.....	199	.....	90	.....	65¢	25¢	P	22	P	$33	40	.....
200	58	.....	.....	.....	.....	.....	.....	25¢	10¢	M	89	M	None	50	140
60	30	204	6	52	6	26	100	30¢	20¢	M	80	M	$50	40	70
350	119	1,050	9	927	9	62	100	42¢	11¢	M	98	M	None	.....	50
83	40	395	5	395	5	100	100	30¢	30¢	M	35	M	None	65	83
75	50	.....	.....	None	2	.....	.....	.....	.....	H	17	M	.....	40	60
150	96	390	.....	225	.....	6	.....	33¢	20¢	P	47	P	.....	40	70
75	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	150	M	None	45	.....
250	55	575	.....	575	.....	100	.....	33¢	10¢	.....	75	M	$40	50	90
300	144	435	4	80	4	18	100	10¢	5¢	M	24	M	$40	56	90
75	38	150	2	12	2	8	100	40¢	25¢	M	20	M	.....	47	50
300	100	750	.....	750	.....	100	.....	20¢	10¢	M	67	M	.....	50	125
45	10	400	.....	350	.....	88	.....	.....	.....	M	80	M	None	35	95
35	35	112	.....	None	.....	.....	.....	.....	.....	.....	None	.....	.....	40	.....
225	72	600	3	400	.....	67	.....	15¢	10¢	M	30	M	.....	43	100
.....	.....	250	8	225	8	90	100	40¢	20¢	H	32	M	.....	43	43
800	266	850	.....	500	.....	59	.....	17¢	.....	MH	125	M	$30	35	35
75	34	210	2	210	2	100	100	20¢	20¢	M	37	M	.....	45	125
350	88	560	30	275	10	49	33	50¢	50¢	M	88	M	No	45	.....
350	71	1,200	.....	1,200	.....	100	.....	17¢	.....	H	105	M	.....	80	80
150	50	340	20	340	10	100	50	30¢	15¢	M	50	M	None	45	100
33	20	185	None	185	None	100	.....	33¢	.....	M	33	M	.....	50	100
60	24	200	None	180	.....	90	.....	50¢	.....	M	41	M	$25	45	90
75	23	450	None	300	None	67	.....	33¢	.....	M	24	M	.....	42	.....
150	100	320	12	200	12	63	100	40¢	20¢	M	26	M	None	50	.....
35	14	150	6	.....	6	.....	100	.....	9¢	.....	22	M	None	45	110
50	15	125	.....	125	.....	100	.....	20¢	.....	M	32	.....	.....	50	125
120	80	185	10	50	10	27	100	20¢	15¢	M	15	M	.....	50	87
80	38	400	11	325	6	81	55	15¢	10¢	M	30	M	.....	42	120
25	25	150	2	.....	2	.....	100	33¢	25¢	H	12	M	.....	75	85
25	12	146	None	146	None	100	.....	35¢	.....	M	19	M	.....	40	75
250	57	800	.....	795	.....	99	.....	22¢	.....	H	121	M	.....	60	130
100	49	275	.....	225	.....	82	.....	25¢	25¢	H	35	M	.....	50	100
200	200	185	3	64	3	35	100	15¢	15¢	M	28	M	.....	45	110
90	45	136	1	136	.....	100	.....	50¢	.....	M	44	M	.....	50	75
500	143	350	15	300	15	86	100	25¢	10¢	M	64	M	None	45	100
.....	.....	425	10	400	.....	94	.....	25¢	10¢	M	80	M	.....	55	55
20	27	150	4	100	4	67	100	25¢	25¢	.....	8	M	.....	40	85
90	60	300	10	None	10	.....	100	33¢	20¢	M	17	M	None	35	80
150	70	275	.....	206	.....	75	.....	25¢	10¢	M	32	.....	.....	50	125
200	67	400	3	325	3	81	100	33¢	.....	H	42	M	.....	45	75
400	124	700	.....	678	.....	100	100	20¢	20¢	H	90	M	None	40	100
25	16	.....	.....	.....	.....	.....	.....	.....	.....	H	20	M	.....	40	125
90	42	.....	.....	.....	.....	.....	.....	.....	.....	M	32	M	None	60	120
35	25	300	5	125	3	42	60	$1.00	25¢	H	12	M	None	44	100
150	74	417	10	125	10	30	100	16¢	10¢	M	60	M	.....	.....	145
190	105	160	2	160	2	100	100	30¢	20¢	H	36	M	None	90	100
7	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	16	M	.....	40	120
100	40	200	75	None	50	.....	67	.....	25¢	M	63	M	.....	100	125
600	150	.....	.....	.....	.....	.....	.....	.....	.....	.....	65	P	.....	105	105
120	56	220	60	125	60	57	100	35¢	15¢	M	52	M	None	40	75
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M	18	M	.....	60	180
120	37	400	50	400	50	100	100	12¢	12¢	M	63	M	$30	60	120

The Place of Politics, Civic Education and Science in City Government

By Charles E. Merriam
Professor of Political Science, University of Chicago

THE problem of the city has become the problem of the nation. Our republic was originally a rural republic, but it has now become a partly rural, partly urban republic, and it tends increasingly to become more and more an urban nation. The early standards and customs of government were those of the country; those of the future will probably be those of the city, and in our generation we have the standards and customs of city and country combined. We may reasonably look forward to a time when national government will be much like city government in its fundamental attitudes and ideas, in its habits of thought and action. What these city standards are is therefore a matter of grave concern to every American interested in the future of his country.

I do not object to politics in city government. On the contrary, I favor it. But let us distinguish between politics and administration, and keep politics out of the administrative business of the city. There are bound to be and there should be, in any healthy community, differences of opinion as to public policy, but the place for the discussion and decision of these problems is in the place of common counsel—the city council. *It is the mixture of politics in administration that has been a conspicuous cause of the misgovernment of American cities.*

While there is wide room for differences of policy in our communities, there is little room for division upon national party lines. The Republican party has no platform outlining its policies on the government of cities; neither has the Democratic; nor the Progressive. Theoretically there might be such platforms, but practically there are none; and the man who had proposed a municipal plank in the Republican convention at Cleveland or the Democratic convention in New York would have been looked upon as a mild sort of a lunatic.

National parties in our cities usually represent a reminiscence, or an appetite; but seldom a principle. Unthinking tradition votes and decides; the machine heavy with graft and spoils votes and decides. And they stand in the way of divisions and decisions that really affect the lives and welfare of the people of the city. If you want a better police force, how does it help you to elect officials pledged to a platform of high or low tariff? If you want better paving, how will it help to select officials earnestly determined to establish or prevent American entrance into the League of Nations? *And you may find in the end that the party flag has been merely the cover for a set of pirates who are chiefly interested in plundering the ship.*

While in Germany last summer, I was struck by the fact that standards of municipal administration were maintained, nothwithstanding the violent changes of policy; the transition from the monarchy to the republic, the desperate struggles between the communists, the reactionaries and the democrats in the center. Efficient administration still survives, except so far as crippled by the financial conditions. The victorious groups do not lay their hands upon the administration, although of course they may and do fundamentally alter the policies of the government.

I observed the same conditions in Czecho-Slovakia and Austria as I had earlier observed them in England and France. How much longer can American cities carry the political Old Man of the Sea on the back of their administration? We are young and rich and powerful, but is not the burden getting a little heavy?

Non-Political Administration a Vital Concern

Of vital concern to all American cities is non-political administration of police, fire, public works, and the other services of the people. It is the constant boring in of favoritism and pull that eats the life out of our cities. Politicians may and do lead the way, but they are often the tools of those who are seeking to twist the service of all to the advantage of one or of a few. Politicians only encourage or utilize a tendency that is wide-spread throughout the community, to get something out of the government rather than put something into it. *Sound standards of administration and administrators who are non-political are among the remedies for this situation.*

Speaking now of bedrock fundamentals, the

great weakness of our city government is due partly to lack of a sound civic education; partly to failure to organize the political intelligence and prudence of the community; partly to failure to keep pace with the miraculous advances made by modern science in other domains of human life.

With all the millions we have spent upon education, we have failed to provide adequate and effective political education of the coming generation. There are exceptions, but this has been the rule. The intelligence we have produced has not been effectively combined with a sense of governmental obligation and a knowledge of political practice and possibility. *One of the greatest tasks of the modern city is the development of political education to a point where no voter may assume the responsibilities of suffrage without a thorough understanding of the essential problems and necessities of self-government.* Grafters are not grown in city halls, but in the attitudes outside that induce civic treason. The so-called politicians do not love darkness rather than light, but they reflect whatever there is to be reflected. Our recent study of non-voting in Chicago showed that thousands of our people have no adequate notion of what their government is or of their relation to it.

Every 22 years a new generation appears, and we can in that time educate a new control in our electorate if we desire to do so. Here lies a way toward a steady up-raising of the levels of civic interest and intelligence. I know none that offers larger possibilities of permanent city improvement.

The Organization of Community Intelligence

Another grave weakness of cities has been the failure to provide for the organization of community intelligence. We may be sure that all the forces of selfish interest will be effectively brought together. It seems easy for predatory groups to come together and to hold together. That the brains and energy of the average American city are fully represented in its public affairs no one believes. The difficulty lies in cooperation among those who might most successfully direct the interests of the community.

Modern cities can not be well governed without drawing into them more of the enterprise of modern science. We live in a world of fundamental change in the domain of science. Physics and chemistry and biology are year by year carrying their inquiries into new fields of control over the forces of nature, and opening up vast possibilities to the human race. How much of this technical science and of the scientific spirit is coming into our government? The truth is that the problem of how men may live comfortably in the great centers we call cities has never been given much scientific thought. *Cities have been thrown together by men who have rushed there to make money, with their interests centered upon this problem and little else, with the result that conditions have often developed that are a disgrace to the human race.* The more fortunate may leave the city when and as they will, while the less fortunate are unable to voice any effective protest. And to suggest that there was room for science in the government of cities? Well, that was a jest, and an uninteresting one. Only recently, with city planning and zoning and housing, have we begun to explore the larger possibilities of human life in cities, and to advance toward finer forms of city living. We are just now coming out on the high road that leads to really intelligent study of the problem of how men can live together in the great centers of population. But this way lies one of the great hopes of city government.

But there are some who say that God never intended that men or cities should be governed by reason. I am constantly reminded that emotions, instincts, interests, prejudices, loves and hatreds govern rather than intelligence and reason; that they always have and always must rule, and that all efforts to introduce intelligence into the problem are futile. Perhaps this is so, but it is difficult to trust the rational demonstration that all rational demonstrations are irrational. It is like a man telling you that he can not talk. Those who undertake the organization of corporations or unions or factories do not fold their hands and declare that the blind forces with which they deal are unmanageable, that they can merely drift. *They do not despair of emotions, feelings, likes and dislikes. On the contrary, they study, adapt and control them within limits. They organize intelligently.* Otherwise we should still be living in caves. Human nature is the great factor in city government, but it is possible to understand human nature better and to organize it more effectively. It is just as human to have good housing as to have slums. It is just as human to have a city plan as to follow cow paths made by bovine nature. It is just as human to organize schools as to allow children to run at large. *It is just as human to apply science to human affairs as to drift with ignorance and prejudice.*

ACKNOWLEDGMENT.—From an address delivered at the Cincinnati Community Supper, November 18, 1924, as reported in the December Bulletin of the Woman's City Club of Cincinnati, Ohio.

Woman's Place in the Police Department

By Mary E. Hamilton

THERE was a time, not many years ago, when a Police Department was No Woman's Land. As in other professions, police work was distinctly a man's job; the proper sphere for woman was the home. To-day the idea of employing policewomen is an accepted one and their presence on the force does not seem more unusual than any other modern innovation.

This new profession for women is without doubt only a part of a great movement which has awakened womankind to a fuller realization of their responsibility towards society and the need of their taking an active part in the affairs of the community. In assuming these larger interests, women have not forsaken the home ideals, but invariably work out their programs and develop their activities in accordance with the traditions of the home, and to this may be attributed much of the success of women in their work to-day.

In many ways the position of a woman in a police department is not unlike that of a mother in a home. Just as a mother smooths out the rough places, looks after the children and gives a timely word of warning, advice or encouragement, so the policewoman fulfills her duty.

Police officers are largely concerned with law enforcement, preservation of the public peace and the protection of life and property. For a long time policemen have performed these duties nobly, and even to-day without the faithful surveillance of our brave bluecoats, civilization might be in a turmoil. Why, then, are policewomen necessary? The best answer to this question is Progress.

When public-spirited groups and individuals began to realize that the best way to solve some of the most difficult police problems was by preventing crime and that such prevention logically started with children, a big advance in police work was made. It was then that the need for policewomen arose. With Prevention and Protection as a slogan and the welfare of children, girls and women for their field of service, policewomen have been given a task to perform quite different from that of their fellow policemen. Raymond Fosdick once said that when policewomen put on uniforms and carried guns and clubs, they became little men, but when they did their work as women, they rendered a great service. And it is certainly a fact that no woman can really be a good policewoman unless she works as a woman and carries with her into a police department a woman's ideals.

A woman's way of dealing with a problem is oftentimes wholly unlike a man's method of working out the same thing. Both may be good, but there are without doubt some police problems, particularly those in which the affairs of children, girls and women are involved, that can best be handled by a policewoman merely because of the fact that she is a woman. For instance, in the cases of women and girls all interviews relating to sex are matters demanding the attention of policewomen. Just as a mother discusses these things with her daughters instead of delegating the duty to the father, so a policewoman, when it is necessary to do so, should discuss such topics rather than the policeman.

The rules and regulations, customs and traditions of police departments, having developed completely under the régime of men, do

Lady Astor on Women Police in London

"Police work is no longer a matter of handcuffs and truncheons," said Lady Astor, in pleading for the continuance of women police in London, "but of prevention of crime as much as possible, and the preventive work that has been already done by the women police, even with their limited powers, is a piece of national economy which it would be hard to beat.

"Surely it is better and cheaper to give stranded girls warning and advice, and to find them shelter, than to allow them to drift until they become charges on the community as short-sentence prisoners and gradually degenerate into habitual criminals.

"The value of the women police will never be fully realized until the whole question of dealing with women of the unfortunate class is put into the hands of women. When that is done, the community will reap the full benefit of their services."

not always function according to a woman's way of doing things. To attempt to accomplish everything one would like to do by disregarding the system in operation, would be a very unwise policy for policewomen to adopt. Effective service depends largely upon the extent to which the women cooperate with the men, for after all, policewomen have taken up policewomanship, not with the idea of replacing men in this work, but for the purpose of aiding and assisting them by seeking in a quiet, unassuming way to prevent crime. As soon as a policewoman proves by her good works that she is sincere, honest and earnest, any antagonism that the men may be inclined to display at first quickly vanishes.

Within recent years New York and another large eastern city have employed policewomen for the first time. The policy of New York illustrates the right way of using the service of women in police work; that of the other city as the papers reported it, shows the wrong way.

In New York City, the first policewoman was a volunteer worker who had been trained at a school of social science. The services of an officially appointed woman had been requested by various prominent organizations on the grounds that a woman protective officer could best look after the welfare of the girls of the city. It was then that the famous Bureau of Missing Persons was in an embryo stage, and in developing this work it was essential that a woman be assigned to many of the missing girls cases. Generally the men in the service did not favor the idea of women entering the field. Not until some difficult cases had been closed satisfactorily by the new appointee did they change their opinion and accept the woman as a regular full-fledged policewoman.

When the first policewoman was appointed in the New York Police Department the fact was not concealed. The men knew who she was, understood why she was there and looked upon her as a fellow worker who was simply tackling the problem from a different angle. The result has been that policewomen in New York have been a success and have proved a help to the Department in every way. New York will always have policewomen.

A short time ago a policewoman in the other city resigned her position because she objected to the duties that had been assigned her, which were in the nature of gathering evidence. "I had joined the force," she said, "to help fallen women and wayward children. Instead I was forced to accompany men of the lowest type, professional stool pigeons, around town, to enter dives of the worst type and do work which could be done much better by men."

The idea of this city was to make of their women, not protective officers, but detectives. When the women were first appointed, they patrolled the various posts of the patrolmen unbeknown to these officers. Such a procedure in itself was sufficient to arouse the suspicions of the men and prejudice them against the women for all time. One newspaper reporter tersely analyzed the situation as follows: "The work of the new policewomen so far appears to be of a watchful waiting order with considerable difficulty in killing time. It looks as though waiting for some one to be bad was going to be a deadly monotonous job for our women's police force." With such a beginning it is not surprising that the outcome of the experiment should register such complete failure as was indicated by the resignation of a woman who had the right ideas about the kind of police work a woman should do, but was given no opportunity to develop her good ideas.

Besides the successes and failures, we have the cities who see the light and want policewomen and those who are still in darkness and refuse to appoint women as police officers. Paterson, New Jersey, for instance, endorsed the policewomen movement heartily because the people there realized that only by the appointment of policewomen could the problems presented by the large numbers of girl operatives in the Paterson silk mills and the children of foreign families be handled properly. A women's league of a large Connecticut city, on the other hand, by resolutions violently denounced the attempts that were being made to appoint policewomen in that city, because they did not believe a woman could do police duty "with the ability, efficiency and promptness of a man." It would be interesting to compare conditions in Paterson with those of this city without policewomen or perhaps to enlighten the ladies who oppose the measure by statistics showing the number of wayward or runaway girls from that city, who are ably, efficiently and promptly handled by policewomen when they leave home and come to New York for a little jaunt.

If the value of policewomen is to be measured in dollars and cents, there may be cities that will follow London's blind lead and declare that women police are too costly to maintain. But when the work of policewomen is appraised in terms of lives—the lives of children, young girls and women—more and more cities and towns will want policewomen at any cost.

—From "The Policewoman: Her Service and Ideals," by Mary E. Hamilton. Reprinted by permission of the publishers, Frederick A. Stokes Company, New York.

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Chamber of Commerce Activities in Public Affairs

Fire Prevention Activities of Chamber of Commerce

WASHINGTON, D. C.—On December 31 the 1924 Inter-Chamber Fire Waste Contest came to an official close. Although records are not yet available, it is known that many of the competing organizations will report reductions in fire loss to life and property. Entering its second year with 165 cities officially enrolled, the Contest gained in momentum throughout 1924, with a result that more than 300 organizations had returned entry blanks by the end of the year.

Much of the success of the Contest is due to the work of the National Fire Waste Council. Two meetings of the Council were held during the year for the purpose of suggesting activities to local chambers of commerce and trade associations engaging in fire prevention campaigns. In addition, a number of meetings were held by committees of the Council which had been appointed to carry on certain phases of the work.

As soon as the organizations enrolled in the Contest submit data relative to the campaigns undertaken by their fire prevention committees, the Contest Grading Committee of the Council will meet. This committee, which consists of George W. Booth, Chief Engineer, National Board of Fire Underwriters, Chairman; Eugene Arms, Manager, Mutual Fire Prevention Bureau, and Franklin H. Wentworth, Secretary, National Fire Protection Association, will review and analyze the reports which are sent in, with a view to determining the winners of the 1924 Contest in each of the four classes.

In order that the data may be uniform, the Committee has prepared and distributed a questionnaire called the Inter-Chamber Fire Waste Contest Record Form. On this the secretaries of the local chambers are requested to give certain information regarding fire losses, educational activities and permanent improvements. In addition, they have been asked to submit supplementary material which will be helpful to the Committee in gaining a more complete picture regarding their accomplishments.

At the last meeting of the National Fire Waste Council, W. E. Mallalieu, General Manager of the National Board of Fire Underwriters, suggested that an attempt be made by the Grading Committee to secure information regarding burnable property values in the cities participating in the Contest. He pointed out the inaccuracy of per capita fire loss figures in indicating the trend of fire waste. It is generally believed that, compared with property values, the relative amount of fire waste is decreasing. Following out Mr. Mallalieu's suggestion, the Committee has requested information regarding property values in the record form.

Will Your City Be in This List for 1925?

The following cities were enrolled in the Inter-Chamber Fire Waste Contest of 1924:

Alabama
Birmingham
Mobile
Tuscaloosa
Arizona
Bisbee
Prescott
Tucson
Arkansas
Fort Smith
Paragould
Pine Bluff
California
Alhambra
Bakersfield
El Centro
Fresno
Long Beach
Los Angeles
Ontario
Pasadena
Redondo Beach
Sacramento
St. Helena
Santa Rosa
Colorado
Denver
Connecticut
Greenwich
Hartford
Middletown
New Britain
New Haven
Norwich
South Manchester
Delaware
Wilmington
Dist. of Columbia
Washington
Florida
Fort Myers
Sanford
Tallahassee
Georgia
Albany
Atlanta
Augusta
Carrollton
Macon
Idaho
Wallace
Illinois
Belvidere
Cairo
Champaign
Chicago
Freeport
Granite City
Kankakee
Ottawa
Pekin
Peoria
Pontiac
Quincy
Rockford
Rock Island
Springfield
Sycamore
Indiana
Bluffton
Clinton
Evansville
Fort Wayne
Indianapolis
Kokomo
Michigan City
Muncie
Terre Haute
Valparaiso
Whiting
Iowa
Ames
Burlington
Cedar Rapids
Centerville
Des Moines
Dubuque
Marshalltown
Sioux City
Kansas
Abilene
Arkansas City
Caney
Coffeyville
El Dorado
Ellis
Emporia
Fort Scott
Hutchinson
Iola
Junction City
Kansas City
Lawrence
Manhattan
Olathe
Ottawa
Salina
Topeka
Wichita
Winfield
Kentucky
Frankfort
Lexington
Owensboro
Louisiana
Alexandria
Baton Rouge
Lake Charles
New Orleans
Shreveport
Maine
Rockland
Maryland
Baltimore
Massachusetts
Brockton
Fitchburg
Lowell
New Bedford
Springfield
Worcester
Michigan
Albion
Ann Arbor
Battle Creek
Charlotte
Detroit
Flint
Fremont
Grand Rapids
Jackson
Lansing
Manistee
Niles
St. Joseph
Traverse City
Minnesota
Duluth
Eveleth
Faribault
Mankato
Minneapolis
Owatonna
St. Cloud
St. Paul
Mississippi
Greenville
Missouri
Carrollton
Carthage
Chillicothe
Hannibal
Independence
Jefferson City
Joplin
Kansas City
Maryville
Mexico
St. Charles
St. Joseph
St. Louis
Sedalia
Springfield
Trenton
Montana
Billings
Bozeman
Great Falls
Nebraska
Beatrice
Columbus
Fremont
Hastings
Kearney
Lincoln
Omaha
York
New Hampshire
Concord
Laconia
Manchester
Portsmouth
New Jersey
Atlantic City
Bayonne
Camden
East Orange
Elizabeth
Englewood
Gloucester City
Hoboken
Jersey City
Montclair
Morristown
Newark
New Brunswick
Passaic
Paterson
Phillipsburg
Ridgewood
Rutherford
Somerville
Trenton
Vineland
New York
Albany
Amsterdam
Auburn
Batavia
Buffalo
Carthage
Elmira
Jamestown

As far as your service needs go each of these Autocar branches is the Autocar factory itself

"A motor truck is only as good as the service behind it."

This service is maintained by one organization: *The Autocar Sales and Service Company*

FROM these 46 branches — factory-equipped, trained, and controlled — radiates a further system of affiliated representatives and authorized service stations.

Thus the uninterrupted earning capacity of every Autocar Truck is assured. Thousands of Autocar users, individuals and great corporations have learned to make that assurance one of their permanent operating economies.

The Autocar Company
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Ardmore, Pa.

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The Autocar Co.
P. O. Box 2005
Ardmore, Pa.
Please send me your
☐ Gas truck book
☐ Electric truck book

Autocar
gas *and* electric trucks
EITHER OR BOTH - AS YOUR WORK REQUIRES

Kingston
Middletown
Moravia
Newburgh
Niagara Falls
Oneida
Plattsburg
Poughkeepsie
Rochester
Syracuse
Utica
Yonkers
North Carolina
Asheville
Charlotte
Greensboro
North Dakota
Bismarck
Devils Lake
Fargo
Grand Forks
Ohio
Akron
Alliance
Cincinnati
Cleveland
Columbus
Dover
Findlay
Hamilton
Lorain
Mansfield
Marietta
Marion
Portsmouth
Tiffin
Van Wert
Zanesville
Oklahoma
Blackwell
Duncan
El Reno
Lindsay
Mangum
Marlow
Miami
Muskogee
Nowata
Oklahoma City
Ponca City
Sapulpa
Tulsa
Oregon
Dallas
Oregon City
Portland
Pennsylvania
Beaver Falls
Bethlehem
Easton
Ellwood City
Erie
Gettysburg
Greensburg
Hanover
Johnstown
Lebanon
McKeesport
Philadelphia
Reading
Rochester
St. Marys
Rhode Island
Pawtucket
Providence
Woonsocket
South Carolina
Columbia
Spartanburg
South Dakota
Aberdeen
Huron
Vermillion
Yankton
Tennessee
Chattanooga
Jackson
Knoxville
Memphis
Texas
Corsicana
Eagle Pass
El Paso
Forth Worth
Galveston
Texarkana
Wichita Falls
Utah
Brigham City
Salt Lake City
Vermont
Barre
Bennington
Burlington
Newport
Virginia
Danville
Lynchburg
Norfolk
Petersburg
Portsmouth
Washington
Hoquiam
Spokane
West Virginia
Charleston
Clarksburg
Fairmont
Huntington
Parkersburg
Wisconsin
Algoma
Beaver Dam
Eau Claire
Fond du Lac
Lake Geneva
Madison
Marshfield
Milwaukee
Nekoosa
Oshkosh
Sheboygan
Superior
Waukesha
Wyoming
Casper

All of the cities which had enrolled by the end of 1924 are participants in the 1925 Contest. As the Contest starts its third year with an enrollment nearly twice as great as in 1923, the National Fire Waste Council and the Insurance Department of the Chamber of Commerce of the United States are looking forward to an unprecedented year of activity in fire prevention among chambers of commerce and similar civic organizations. The success of the Contest to date clearly indicates that business men generally are becoming more interested in fire prevention each year.

JAMES L. MADDEN, Manager,
Insurance Department, Chamber of Commerce of the United States.

Cooperation with City Council and Local Civic Organizations

SANTA ROSA, CALIF.—Recognizing that it is the function of a chamber of commerce to initiate movements for the improvement of municipal affairs, to investigate methods of procedure, and to educate the public to a favorable attitude toward proposed improvements, the Santa Rosa Chamber of Commerce has adopted the policy of appointing committees to work in close cooperation with the City Council and City Manager, in whose hands, of course, lies the responsibility for the administration of the affairs of the community.

When the City Council had under consideration the granting of new franchises to the McDonald Water Company and to the Santa Rosa Motor Street Car Company, the Chamber investigated the terms of both proposed franchises, recommended certain changes, which were approved by the Council and incorporated in one of the franchises, and then endorsed the granting of the franchises.

At the request of the City Council the Chamber conducted an educational campaign which resulted in the passage of bonds for the improvement of the city sewage disposal plant. It investigated the desirability of making changes in the existing automobile parking ordinance, and secured the signatures of down-town property owners to a petition to the Council urging that certain amendments to the ordinance be made. The recommendations of the Chamber in this connection were adopted by the Council. A study of the subject of city planning has been made by the Chamber, and meetings have been held to stimulate interest in the development of a city plan for Santa Rosa.

Believing also that the Chamber of Commerce should not only initiate civic activities, but should cooperate effectively with other local organizations in movements of benefit to the community, the Chamber has tendered its assistance to many other local bodies during the past year. It cooperated with the Knights of Pythias in celebrating the acquisition of the Kearns Ranch for their home, providing automobiles and helping to defray the expenses of the barbecue; assisted the Santa Rosa Baseball Club to secure funds for the construction of bleachers on the high school athletic grounds; cooperated with the Sonoma County Federation of Women's Clubs by conducting representatives of the General Federation of Women's Clubs on a trip through the county; and worked with the Santa Rosa Playground Association in connection with a swimming meet conducted last summer. In addition, the Chamber has been successful in helping many local branches of national organizations in bringing their district or national conventions to this city, in some cases assisting in raising funds for guaranteeing the convention expenses.

MARK LEE, Secretary-Treasurer,
Santa Rosa Chamber of Commerce.

Newspaper Cooperates in Developing Program for Junior Association of Commerce

MILWAUKEE, WIS.—Through the community service contest recently conducted for the Milwaukee Junior Association of Commerce by the *Milwaukee Journal*, the Association received many worth-while suggestions on which to base its program of work for the coming year. In this contest, which was open to any resident of the state, each entrant was asked to outline in not more than two hundred words an answer to the question, "How can the Junior Association of Commerce best serve Milwaukee?"

The idea of holding such a contest originated with the Junior Association, which saw in the plan possibilities not only for gaining a new insight into the needs of the community, but of arousing interest in the work of the organization to such an extent as to bring about a considerable increase in membership. The plan was submitted to the *Milwaukee Journal*, with the result that it was enthusiastically accepted by the managing editor, who volunteered to donate the money necessary for the cash prizes. In addition to a first prize consisting of a bronze replica of the statue of "The Thinker," mounted upon a mahogany base bearing a gold plate on which the winner's name would be inscribed, six cash prizes, ranging from $50 to $5 each, were offered. The answer awarded first place by the committee of judges suggested that the Junior Association of Commerce endeavor

Snows as Deep Now as They Were in '80s
New York Times Leased Wire.
WASHINGTON, D. C.—The United States weather bureau on Monday punctured a popular fallacy usually expressed by elderly people in "we don't have such heavy snowfalls now as we did when I was a child." According to the weather bureau the winters nowadays are just as severe as they were in the days of our grandads.
"As a matter of fact," said the weather bureau, "the deep snow remembered by the man who was a boy in the seventies or eighties, reached that boy's shoulders, but would be less than knee deep with his present stature. Again many men who now live in cities were brought up in the country where large drifts are piled up when the wind has full sweep over
NEW LOADER USED BY DULUTH IN FIGHTING SNOW
Street Railway Company Keeps Tracks Clear; Cars on Time.
Battling the snow for the first time since becoming commissioner of public works, W. Harlow Tincher had the street clearing crew, under command of James O. Lawson, on the job Thursday

King Winter is as Strong as Ever

When old timers gather one of their favorite tales is that the winter snows of their boyhood were more severe than those of today. Figures from various sections of the country prove these stories to be untrue.

And to the modern city snow presents greater problems than it did to the city of bygone years. Automobiles, motor-trucks and street cars must have snow-clear streets if they are to provide anything like adequate transportation.

To keep their arteries of transportation open a constantly increasing number of cities are turning to the efficient Barber-Greene Snow Loader. They have found that hand labor is a too slow and costly means of returning traffic conditions to normal.

In Madison, Wisconsin, it used to take ten teams, with four shovelers to each wagon, two hours to clear a city block. A Barber-Greene Snow Loader clears the same stretch in fifteen minutes.

These results are substantiated by the records that Barber-Greenes have established throughout the entire northern half of the United States.

An additional factor in the low cost of Barber-Greene snow removal is that the Barber-Greene Snow Loader can be converted into a bucket loader to handle the many loading jobs that are to be found in every town during the summer.

The new Barber-Greene booklet, *Snow Insurance*, shows how a number of cities of varying sizes have definitely licked King Winter's snows. This booklet will prove of interest to every one concerned with keeping streets and highways clear. A copy will be sent upon request.

BARBER-GREENE COMPANY—*Representatives in Fifty Cities*—515 W. Park Avenue, Aurora, Illinois

BARBER GREENE

Portable Belt Conveyors — Self Feeding Bucket Loaders

Coal Loaders . Automatic Ditch Diggers — Snow Loaders . . . . Coal Feeders

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to develop the outlying business streets of the city; that business organizations be formed in sections where no such bodies exist at the present time; and that civic speakers and lecturers on business methods be supplied by the Association from time to time to address these new associations and similar bodies now functioning. This and other winning suggestions will be incorporated in the Association's program for next year.

CHARLES G. CRABB,
Executive Secretary, Milwaukee Junior Association of Commerce.

Opening of Portsmouth's Combined Market and Auditorium Building

PORTSMOUTH, VA.—Through the passage of a bond issue for $200,000 by a vote of the citizens of Portsmouth in 1923, this city has been able to erect a municipal market that ranks high among institutions of its kind in the South. Actual work on the building was commenced in February, 1924, and the market was officially opened to the public, with a fitting ceremony arranged by the Portsmouth Chamber of Commerce, on November 25 last.

The market is divided into departments, segregating stalls for farm products, meats and sea foods. On the first floor, with individual entrances on the outside of the building, are four stalls for sea foods, and sixteen stalls for fruits, vegetables and other farm products. In the interior are twenty stalls, with modern refrigeration equipment, for meats, delicatessen and dairy products. On each of the four corners of the building a store, 18 x 26 feet in size, has been laid out.

The second floor has been set aside for the offices of the general market supervisor, the chief of the bureau of markets and standards, and the plumbing inspector. Rest rooms are also located on this floor. On the third floor has been erected a fine auditorium with a seating capacity of 1,000 and a stage measuring 20 x 34 feet. In connection with the auditorium are a check-room, two dressing-rooms, a furniture room, a dining-room and a well-equipped kitchen.

A 24-ton automatic refrigeration plant in the basement furnishes the refrigeration for the stalls in the interior of the building and for the sea food stalls. The inside stalls are equipped with display cases, sinks, meat blocks, racks, hooks and shelves. Lighting and heating are included in the very nominal rent charged for the stalls. Another noteworthy feature is the installation of hot and cold running water for the stalls.

THE STALLS IN PORTSMOUTH'S NEW MARKET

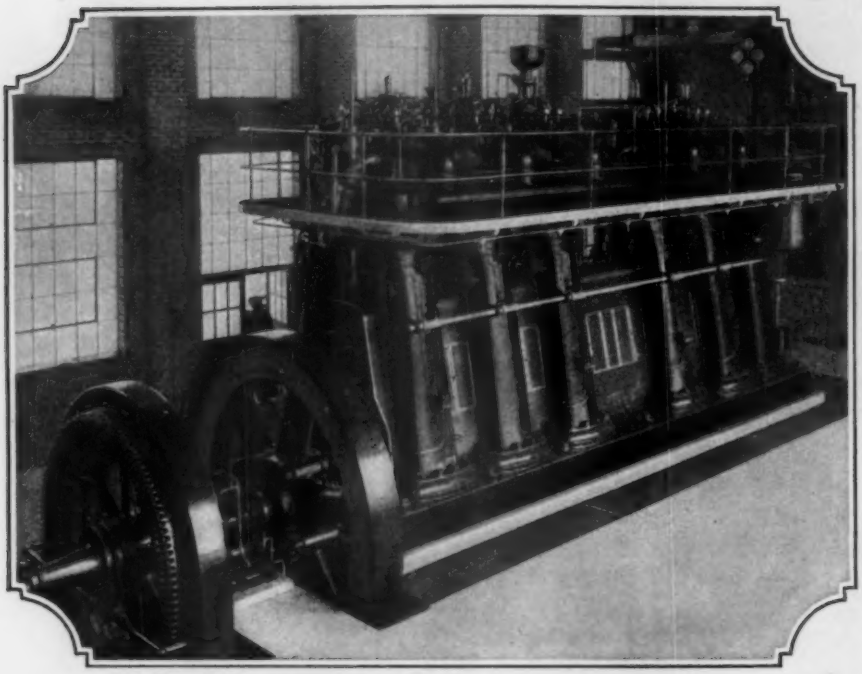
AUDITORIUM IN THE MUNICIPAL MARKET BUILDING, PORTSMOUTH

The heating equipment includes two boilers, each operating independently of the other, so that in case of an accident to one of the boilers, the building will not be left entirely without heat. In the basement, in addition to coal bunkers, a cold-storage room for the use of the merchants has been provided.

The outside dimensions of the building are 170 feet in length, 90 feet wide, and 53 feet high from the ground to the roof. It is surrounded by a 10-foot canopy which, at the entrances to the market, is constructed of green cathedral glass. The exterior of the building has been built of a fine-quality tapestry brick, and presents an attractive appearance.

At the request of the Director of Public Welfare the Portsmouth Chamber of Commerce undertook the preparation of an appropriate program for the opening ceremo-

NEW MARKET AND AUDITORIUM BUILDING, PORTSMOUTH, VA.



The 1250 H.P. Diesel Unit Installed at Ponca City

Ponca City Installs Diesel Power

Municipal executives endeavoring to render a service to the community can do so by providing dependable power and light at reasonable rates. An ample supply of cheap electrical energy is always a valuable municipal asset—it stimulates growth.

How is your city situated in this respect? Are the interruptions of service frequent—are the rates as low as other cities of similar size possessing an efficient city-owned plant?

If not, the solution can invariably be found in the installation of Nordberg Diesel Engines. These dependable units not only serve faithfully but at such a low cost of operation that they permit of low rates even with a reasonable return being made upon the investment.

Ponca City, Oklahoma, when confronted with the problem of more efficient power in its municipal plant, solved it satisfactorily by the installation of a 1250-horsepower Nordberg Diesel engine. There are many instances in central stations, municipal and industrial plants where these engines are furnishing dependable service at remarkable savings in power costs.

For further particulars as to the possibilities of these engines, submit your problem to Nordberg Engineers for a thorough analysis of your power problems. Write for Bulletin NY-3.

Nordberg Manufacturing Company

Milwaukee, Wisconsin

Diesel Engines—Uniflow Engines—Corliss Engines—Compressors—Underground Loaders—Track Shifters—Mine Hoists—Special Machinery

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nies. On that evening 8,000 people were present, making a record gathering for this city. No produce was on sale during the opening night, but the merchants had their stalls arranged and displays ready for business on the following day. The Directors of the Chamber acted as hosts of the evening and conducted parties on an inspection of the market until the crowds became so great as to make personally conduced tours too difficult. The official dedicatory addresses were made by the City Manager and the Mayor. Music was furnished by the band of one of our local manufacturing plants, and two other concerns furnished refreshments of coffee and doughnuts which were served throughout the evening. A particularly interesting feature of the program was a presentation of motion pictures and travel talks, by a representative of a local coffee plant, portraying the story of the preparation of coffee through all stages of the process.

In arranging and conducting the program for the opening of the municipal market, the Chamber of Commerce feels that it rendered a worth-while service to the community.

GEORGE H. CLESS, JR.,
Executive Secretary, Chamber of Commerce.

Council-Manager Plan of Municipal Government Favored in Chamber of Commerce Referendum

NEWARK, N. J.—In a referendum vote on forms of municipal government, recently submitted to the members of the Newark Chamber of Commerce by their Committee on Municipal Affairs, the Chamber was definitely committed as being in favor of the council-manager plan of government for the city of Newark.

Prompted by a trend of events in the latter part of 1923, that clearly indicated a certain amount of dissatisfaction on the part of the citizens of Newark with the existing commission government, the Board of Directors of the Chamber gave careful consideration to the local situation. The question of a change of form of government was deemed by the Board to be one of such civic import as to warrant a detailed study before taking action, and the Chamber's Committee on Municipal Affairs was thereupon instructed to make a complete study of municipal government forms and to report to the Board of Directors, with recommendations.

The Committee's report, completed and submitted to the Board after almost nine months' study, states that the council-manager plan of government is the best adapted to present-day municipal conditions and problems, and should be the objective in any change in local government that may be undertaken in Newark.

Because of the vital importance of the subject, it was decided by the Board that the report be referred to the Chamber membership for action, and to this end it was ordered that the report be distributed to the members in pamphlet form for study and a subsequent referendum vote. The referendum ballot read in part as follows:

1. A highly efficient form of municipal government is of essential importance. If the form is not properly conceived, civic interest will slacken, and public opinion cannot exercise the force it should.
2. Our present commission form has many points of merit, and is a distinct advance over the previous aldermanic form with its ward politics and diffusion of responsibility. It presents, however, defects which the modifications as proposed by our city commissioners cannot overcome.
3. The council-manager plan with its separation of legislative and administrative functions, and centralization of administrative duties in the hands of an expert, is a marked improvement on the commission form and should be the objective to be sought in our further municipal progress.
4. An educational campaign should be conducted in which our Chamber of Commerce as the most important civic organization in our city should assume the leadership. No referendum election for the adoption of the council-manager plan should be sought until there is, on the part of our citizens, a complete understanding of and general demand for this plan.

When the polls closed it was found that 61 per cent of the membership had cast their ballots on this question, and that over 84 per cent of the votes were in favor of the adoption of the Committee's report

Plans are now under way for the development of an educational campaign, and already numerous requests have been received from various organizations for speakers on the subject.

E. W. WOLLMUTH,
Executive Secretary, Newark Chamber of Commerce.

City Manager Plan Gets a Foothold in New Jersey

UNTIL December, 1924, New Jersey was one of the constantly diminishing number of states—then fourteen in number—having no city manager municipality. Under a law enacted by the 1923 Legislature, the municipalities of New Jersey had been given the right to adopt the commission-manager form of government. Attempts in four municipalities—Deal, Plainfield, Atlantic Highlands and Montclair—to secure popular approval for the new plan had failed; but the city at the very southern tip of the state has finally turned the tide, and Cape May becomes New Jersey's first city to approve the commission-manager plan.

New York's Town Hall Burns $800,000 in Mortgages

THE contributions of some 3,000 persons, in addition to a gift of $600,000 by an anonymous donor, made possible a ceremony in the Town Hall, New York, on January 12, at which $800,000 in mortgages were burned. Five years ago the plan to start the Town Hall was launched with $25,000 in the treasury. Since that time about $1,300,000 has been raised for the project, the moving spirit in the enterprise having been Robert Erskine Ely, Director of the League for Political Education. The fine building which now stands on 43d Street between Sixth and Seventh Avenues houses also the Civic Forum, the Economic Club, and the Town Hall Club.

Valued service with every gallon—

IT is often remarked that the Tarvia salesman is more than a salesman.

For with every gallon of material that he places, he includes his services—his expert knowledge of right road construction.

Since the first Tarvia road was built, highway engineers and Tarvia men have worked together. And today, as always, during the actual application of Tarvia, you will find a Tarvia man — efficient, highly trained, reliable — on the job.

There's no intrusive supervision from Tarvia men—but they're always ready with sound, practical suggestions when called on.

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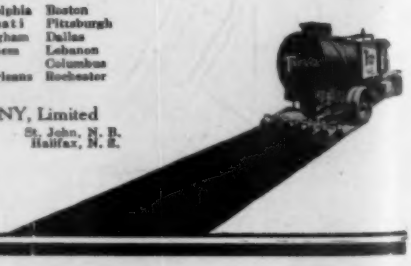


Tree Planting Along Boulevards and Major Highways

By Richard J. Hayden
District Superintendent, Park Department, South Boston, Mass.

TREES planted in city streets have an exceedingly heavy burden to bear. They are confined to restricted feeding areas and are deprived to a large extent of air and water by the caked surface soil around their roots, and the hardened surface of the streets and sidewalks. All of this goes to make their life a hardship; hence the advisability of knowing what to select, and how and when to plant, as well as how to care for the growing trees so that the best results may be obtained.

In planting trees the prime essential is the proper preparation of the tree pits, the dimensions of which will depend upon conditions. On streets having sidewalks entirely paved, trees can be planted and maintained if the excavations are nine feet square, or its equivalent, and four feet deep, and filled with one foot of good clay soil in the bottom, the remaining three feet of a good, friable loam incorporated with one-third well-decomposed manure. This work should be done the season previous to planting, so that the soil and manure will be thoroughly combined for the reception of the plants. The tree pits should be thirty-five to forty feet apart, depending, however, upon the variety of tree to be used. It might be well to add that in the laying out of streets that are to be planted with trees, the engineers who make the apportionments should provide a grass area between the curbs and the sidewalks, and that the tree pits should be made as the work progresses. This lends a touch of nature to the growing trees and makes the street more attractive.

The time to plant trees varies with the locality. Spring is considered the best season, however, because trees that are set out at that time have an abundant opportunity to become established before winter. Early fall planting is also practiced with good results, inasmuch as root growth continues for some time after the leaves have functioned and have begun to fall.

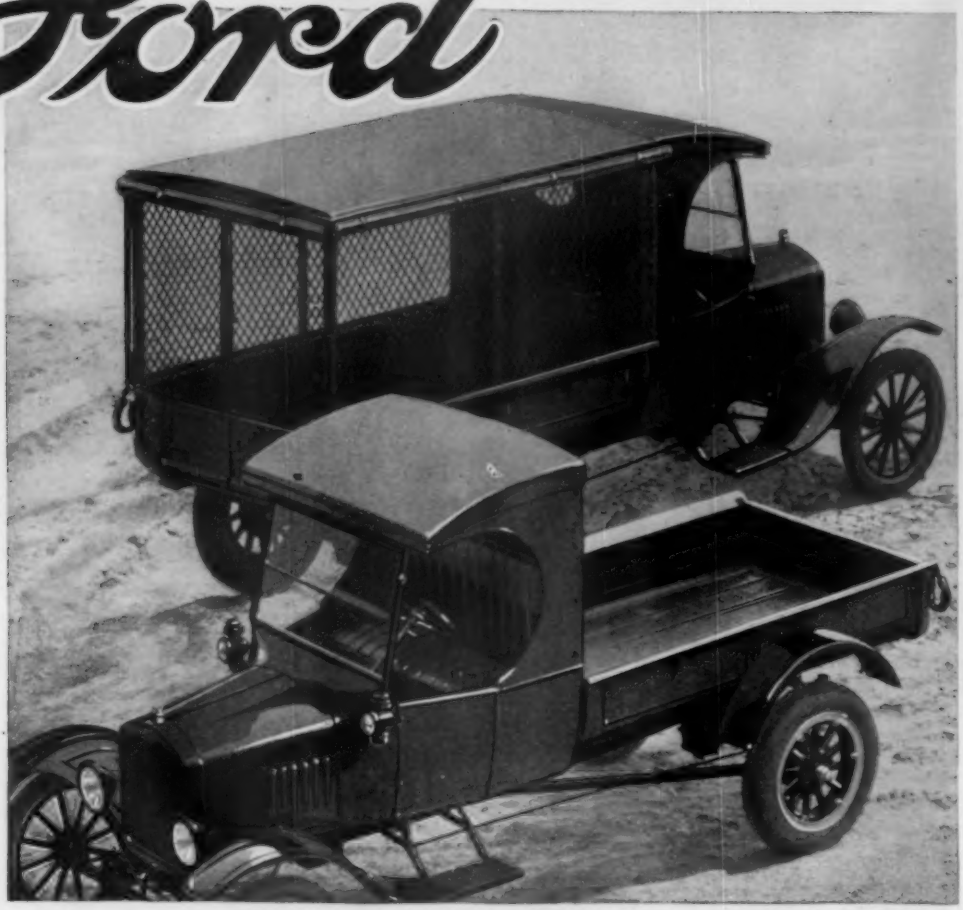
The selection of trees for streets, boulevards and major highways will depend upon climatic conditions, soil and other circumstances. The trees selected should be well adapted to the climate and soil, and in this respect a careful observation of the natural tree growth of that locality will give some aid. It is also well to consider in the selection their resistance to insects and disease, as well as their adaptation to the environment. Trees that are well adapted to the northeastern section of our country, from Illinois to the Atlantic Ocean and southward to the Appalachian Mountains, include the Norway maple, the red and pin oaks, the staminated form of the ginkgo tree, the European linden, oriental plane and English elm. These have proved their resistance to disease and insects and their tolerance to smoke. The trees should have straight trunks and a good set of branches, the lower ones being 7 to 9 feet from the ground. The average size is usually 10 to 12 feet tall, and 2 to 2½ inches in diameter breast-high. The trees selected should be transplanted at least every two years while they are in the nurseries, to insure a thorough root pruning and thus encourage an abundance of fibrous roots close to the trunk.

Only one variety of tree should be used in each street, boulevard or major highway, so that uniformity may be obtained in size, habit, color and character of the bark and foliage, and in the time of foliation and defoliation of the trees.

Before these trees are reset in their permanent homes, they should be pruned while they are in a horizontal position; the work is done most conveniently then. All twigs that cross each other should be removed, and the branches that are allowed to remain should be cut back about one-third to a crotch or bud, and should be subordinated to a leader. The pruning of these tops tends to offset the destruction that the roots suffer in the process of removal. The broken and bruised roots should also be cut off smoothly and the ends covered with coal tar. This will prevent root rot and stimulate the formation of new fibrous roots.

In resetting trees do not make the error that is too frequently made by many so-called arboriculturists—that of having the weak side facing the north. Always reset the trees so that the best-furnished side faces the north,

Ford



The Biggest Value In a One-Ton Truck

Results obtained from actual service in lines of business where rapid transportation is required, have made the Ford One-Ton Truck the Standard rapid delivery unit.

Its work is dependable under all conditions of traffic; it represents only a very small item of expense, both in operation and investment. It is easily the best value in truck transportation ever offered.

Authorized Ford Dealers can supply data on cost of operation covering every line of business involving motor transportation.

Ford One-Ton Truck With All Steel Body and Cab - - $485

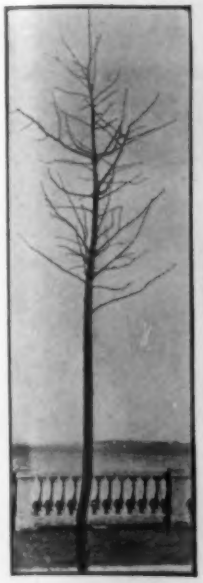
With canopy roof, side curtains, screens and end doors - - $540

One-Ton Chassis $365

All prices f. o. b. Detroit

Ford Motor Company

Detroit



THE UNPRUNED TREE WITHOUT SUPPORT OR PROTECTION

PRUNING BRANCHES AND BRUISED AND BROKEN ROOTS OF TREE IN HORIZONTAL POSITION

THE PRUNED TREE SUPPORTED BY A STRONG STAKE

and the weak side faces the south, and in a few years the trees will have well-balanced crowns. The trees should be planted as deep as they stood in the nursery rows. The roots should be spread out carefully and fine mellow loam worked in tightly around them so that no air spaces occur. The filling and packing should be continued in layers until the soil is within a few inches of the level ground. This depression allows the tree to get a good proportion of rain-water. The surface layer of soil should be loose, so that it will act as a mulch, or, still better, a mulch of manure should be given. The tree should then be fastened to a strong stake, and a well-constructed tree-guard six feet high placed around it.

A large percentage of the troubles of growing trees can be traced to negligence. What farmer or suburban gardener would grow crops in the same ground for a period of seventy-five or a hundred years without cultivating or manuring the ground or caring for the growing plants? Yet that is the condition under which many of our street trees are expected to maintain themselves and produce healthy growth; and not only that, but air and rain-water are shut off by the caked soil around the trees and by the hard surface of the streets and sidewalks. It is just as necessary to care for the growing trees as for the growing root crops in your garden.

TREE PIT REDUCED TO 8 BY 5 FEET

The Shade Tree Commission of Newark, N. J., has done much to treat its street trees as it does its gardens. In the city of Paris previous to the World War $60,000 a year was spent to keep the trees in condition, and this does not include the Bois de Boulogne or the Bois de Vincennes. The street trees in the city are surrounded by steel sectional gratings which prevent the surface from becoming hardened by pedes-

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trians; hence, the ingress of air and water is unhindered. These trees are cultivated and fertilized once a year.

Pruning of the growing trees in the streets, avenues and boulevards is essential to their success. The best time to do this work is during the dormant period, when all dead, diseased and broken branches should be removed, as well as any superfluous growth that may appear. The branches to be removed should be cut as close as possible to the trunk of the tree, or to the parent branches from which they are cut, so that no stubs are noticeable. Horizontal cuts must be avoided, as they are likely to hold snow and water that will eventually work down between the bark and the wood, thus hastening decay. All cuts must be painted over to prevent the absorption of moisture and thereby lessen the danger of decomposition. When the wounds are kept sound and healthy, the bark will gradually grow over them and finally cover the entire surface.

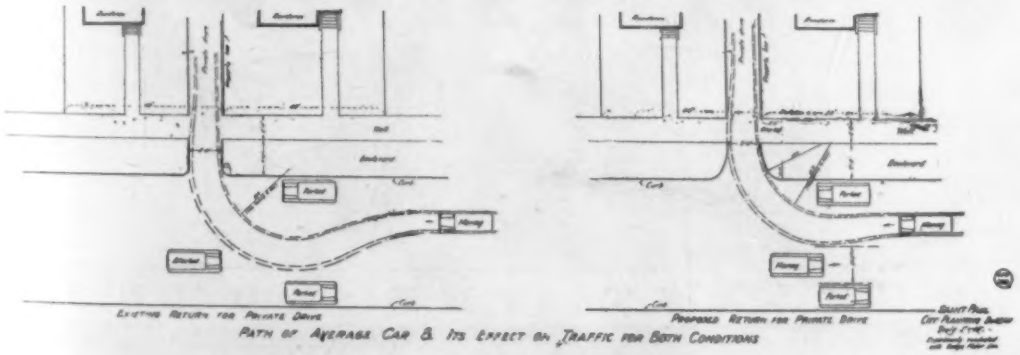
The insects which attack our shade trees are of many kinds. Some of them bore into the trunks and branches, while many more consume the leaves and others suck the sap from the branches or leaves. The boring insects, such as the leopard moth and maple borers, are controlled by injecting carbon bisulphite into the apertures and plugging the holes with putty or soap to hold the fumes inside. The biting insects or caterpillars feeding on the leaves, such as the gypsy and brown-tail moth, and canker-worm, tussock and satin moths, are controlled by destroying the egg clusters during the fall and winter months or by spraying the trees with an arsenate of lead mixture during the foliage season when the caterpillars start eating. The time for spraying varies with the kind of invaders present and the climatic conditions. The sucking insects, such as the San Jose and oyster shell scales, are destroyed by the lime-sulphur wash and miscible oils. These materials are on the market under various trade names and need only to be diluted with water before applying. Spraying for these pests should be done after defoliation in the fall and before the buds open in the spring.

There is, however, one vexatious difficulty which often arises from the presence of trees in streets, and that is the stopping of sewer and house drain pipes—particularly the latter—by the tree roots. Roots will enter through very minute holes or cracks in the mortar with which the pipes are jointed, and then expand into a brush of coarse hair roots, which will completely stop the pipe in a short time. This trouble is really due to defective workmanship in the jointing of the drain pipes.

In conclusion, to insure the longevity of trees, the tree pits must be at least of the size stated, and must be provided with good soil and manure, thoroughly assimilated in the proportions given. The selection of the trees must be as well adapted to the conditions as it is possible to have them; and only one variety of tree should be used on each street. They must be pruned and reset with care, and the surface soil must be cultivated and fertilized at least once a year, and, finally, the trees must not be a home for insects.

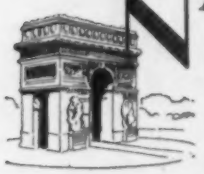
Acknowledgment.—From paper at the Boston convention for the American Society for Municipal Improvements.

Eliminating One Source of Great Danger from the Streets


Existing Return for Private Drive
Path of Average Car & Its Effect on Traffic for Both Conditions
Proposed Return for Private Drive

In the interest of traffic safety, the city of St. Paul is beginning to make a careful study of engineering standards to see how these should be changed or corrected. This illustration shows a study made of the path of a car entering a private driveway from its own side of the street. By enlarging the entrance to private driveways in this manner when streets are paved or boulevards are improved, one of the sources of great danger is being removed from the streets.—George H. Herold, City Planning Engineer

Napoleon Paved with Brick



NAPOLEON paved with brick, and modern Holland is still using brick pavements laid *more than one hundred years ago.*

In America the first experiments with brick paving date back only fifty years, but there are communities which are still using their original brick pavements laid thirty to thirty-five years ago. Many of these veteran pavements will pass the half-century mark in service rendered, in spite of the increased wear and tear of modern traffic.

Is there any pavement in your neighborhood, *other than brick,* which has already given a third of a century of service? Our investigators have yet to find any example of a pavement which, at equally moderate first cost, can match the endurance records set by vitrified brick.

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The Teaching of Safety in the Schools

DURING the World War, the use of the public schools as a means of influencing public opinion was first carried on in a systematic way. An emergency existed and the schools did their full share in helping to meet it. Since that time boards of education have been so besieged by requests for help from promoters of every sort of activity, philanthropic, social and even commercial, that they have in self-defense been obliged to protect themselves by drastic rules against the use of the schools for any purpose not educational. On the other hand, the more progressive and far-sighted educators have discovered that some of those movements actually have educational value and as such could claim a permanent place in the school curriculum. Health, thrift, and humane education, to cite a few of the most familiar examples, have won a place because of the educational content of the material which they present.

The Committee on Education, in adopting its conclusions and recommendations with regard to the introduction of safety in the public schools, has done so only after full discussion and with appreciation of these facts, being convinced, first, that a situation exists which is so serious as to establish the right of safety to a place in school activities, and, second, that the subject has genuine educational value.

The Report of the Committee on Statistics paints a dark picture of the seriousness of the situation. Twenty-two thousand six hundred deaths, 678,000 non-fatal personal injury accidents, and $600,000,000 economic loss make up the toll in suffering and financial loss exacted on streets and highways. This represents an increase of 80 per cent in the past seven years. Automobile traffic is responsible for about 85 per cent of the total number of traffic fatalities.

Thirty per cent of all fatal automobile accidents happen to children of school age and under; or, in other words, nearly 6,000 children were killed last year in motor accidents alone. This is a situation that no one can ignore.

The argument has been advanced that this is one of the duties of the home and the parents, and that the public school has a sufficiently difficult problem in the performance of its function as an educational institution; that it cannot stop to educate the child in the various phases of human relations. This may have been true 50 or even 25 years ago, but the complexity of social life has increased so rapidly that a large proportion of the parents of children of school age have been unable to keep pace with it. The fact is that conservation of the lives and limbs of the children—for whom society assumes a certain measure of responsibility when it demands that they attend school—is quite as essential as training for the future. The teaching of safety in the schools requires no further justification.

Recommendations of the National Conference on Street and Highway Safety

That education in safety and accident prevention should be incorporated in the curricula of both elementary and secondary schools was one of the important recommendations of the National Conference on Street and Highway Safety, held in Washington, D. C., December 15 and 16. The article here published comprises a part of the report of the Conference's Committee on Education. Portions of the reports of four other committees of the Conference were published in this magazine for January (pages 25-32). For copies of any of these reports, or of the consolidated report of the Conference, application should be made to the Conference on Street and Highway Safety, Department of Commerce, Washington, D. C.

Safety in Relation to Citizenship

Fortunately, safety, entirely apart from its humanitarian and economic aspects, has an educational value and can be introduced into the schools, not as an added activity or subject in the curriculum, but as a part of the rapidly broadening objectives which are now commonly recognized as the real purpose of elementary education. Modern education recognizes the fact that the school can no longer be considered as an institution established primarily for the acquisition of knowledge, but that it must teach the pupil how to become a useful and worth-while citizen. The modern educator is discarding those methods which teach the child only to compete and is adopting those which teach him also how to cooperate. In such a program of training the school must be an institution for the purpose of preparing the child for life, an institution where, as one writer

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has expressed it, the child comes in contact with modern life in the miniature.

John Dewey says: "A curriculum which acknowledges the social responsibility of education must present situations where problems are relevant to the problems of living together, and where observation and information are calculated to develop social insight and interest." There can be no doubt that safety belongs in such a curriculum. A reasonable physical safety is one of the first requisites of a well-ordered life. We must teach the child both safe personal habits and those social attitudes and actions that are necessary to the safety of all.

The field of safety presents exactly such situations as are suggested by Professor Dewey. Safety education has already been adopted in many school systems by introducing its various aspects into the subject matter of existing courses in the curriculum, thereby enriching them with material related to the child's experience and observation. The result of this has been fresh, keen interest on the part of the children in their school work and a consequent lightening of the teacher's burden and a carrying back into the home of the principles learned in the classroom. In several cities the work is under supervision of some one giving his entire time to it.

The problem of safety is closely linked with health, thrift and the many other elements which taken together make up the great problem of developing a finer citizenship. Educational leaders of the country are now endeavoring to weld together the essential elements of a more fundamental and far-reaching course in citizenship for the public schools than any that exists at the present time.

The development of safety education in the public schools is well past its initial stages. It has a definite place in the curriculum, and the school which does not give such instruction is not making complete use of its opportunities. The Committee on Education feels, however, that there is great need at this time for a comprehensive review of the progress being made in this field by the school systems in which it has been installed, partly as a basis for improving the general method of presentation, and partly as a basis for inserting the subject into the larger and broader courses in good citizenship. It is for this reason that your committee has recommended not only the installation of safety education in the schools as part of a general course in citizenship, but has also urged that some agency of research be induced to gather together materials and accounts of practices in safety education for use in the preparation of such a program.

Instruction Through Drawings, Posters and Models

The Committee has referred in its conclusions and recommendations and in the above discussion to an introduction of safety in the schools by methods which interpret present subjects in the curriculum in terms of safety. To indicate how this is accomplished, the Committee wishes to cite the following examples, drawn from the experience of the Education Section of the National Safety Council and the Highway Education Board.

Drawing is a subject now in the curriculum of all public schools, and much valuable instruction may be given through the medium of drawings, posters and models illustrating facts and situations related to safety and accident prevention. Attractive blackboard friezes may be made showing street incidents. The special badges and insignia of traffic officers may be drawn and their meaning discussed, as well as such familiar objects as "Stop and Go" signs, silent policemen and safety zones. Familiar signs such as "Railroad Crossing," "School—Slow Down," "Hospital Street," "Wait Until the Car Stops," and "Keep to the Right," may be lettered and the reasons back of them discussed. Older classes may make diagrams of the city showing the location of possible hazards, and scrap-books illustrating the development of certain inventions, such as the motor vehicle, may be built up and prove a valuable means for acquiring general information.

Other Methods of Safety Instruction

Conversation, story-telling, reading, oral and written compositions, debates, and the writing of slogans, rules, letters, verses and plays are all excellently adapted to safety instruction. There is a splendid opportunity here for the child to learn to read newspapers, magazines, and government reports from which selections can be made expressing the fundamental reasons for safety. Nature study occupies an important place in the curriculum of the average public school, and a study of the safety devices in nature, as, for example, protective coloring, can be made most fascinating.

Educational contests, which have proved to be a popular method of introducing the subject of safety education into the schools, include safety essay contests among elementary

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Laid in 1914—nearly 11 years ago—The Trinidad Lake Asphalt paving on Oregon Avenue, Detroit, Michigan, is still in excellent condition, as the photograph above shows.

Not one cent has been spent for maintenance on this pavement to date, according to city records.

Millions of square yards of Trinidad Paving—in all parts of the world and from ten to forty years old—are visible proof of its extraordinary durability under the most severe conditions of weather and traffic.

Trinidad Asphalt is a native-lake solid bitumen—not an artificially produced product. It resists wear and weather.

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school pupils and the safety lesson contests among elementary school teachers.

Reference has been made to the use of organized schoolboy patrols and junior safety councils. One of the most important features of safety education is that it affords a practical outlet for the pupil's activity. Through these patrols and junior safety councils is given the opportunity for effective cooperation in carrying out the principles they have learned in class work. The schoolboy patrols are particularly effective in that they provide for the assignment of older boys to the work of actually assisting traffic policemen at certain periods of the day in caring for the safety of younger children approaching or leaving the school building. This is of very great value, not only to those who do the work, but in arousing the interest of their companions who are observing them. Junior safety councils organized along the lines of a community safety council and under the administration of the pupils themselves are also practical in that they provide for the working out of the theories which the children have been taught by their teachers.

The use of motion pictures and dramatization is just as effective in safety education as in all other forms of education.

Talks by local traffic police officers in uniform are recommended by the Committee for the reason that an officer in uniform describing his duties as a traffic officer and emphasizing the conditions which result in accidents, commands the instant attention of the child and places before him vividly the necessity of being alert and careful on the streets. The officers doing this work should be carefully selected and the instruction thus given should be followed up systematically by the teacher. Experience has shown that these talks should be repeated at intervals.

Importance to Municipalities of the Public Forest Problem

By Shirley W. Allen
Forester, The American Forestry Association

THE public forest problem, whether state, national or municipal, is so to utilize waste or otherwise unproductive land that it shall yield revenue, protect the permanence and purity of the water-supply, and contribute to recreation. The American Forestry Association is stressing the public value of a chain of National Forests, encircling the larger centers of population and industry, and is now advocating before Congress such a system of forests in the eastern half of the United States.

In terms of recreation the value of the forest is great. In the heart of every American there is an inherent love of the outdoors. We respond quickly and happily to the lure of trail and camp, and to the clean spirit of adventure which is fostered beside the singing stream. Three hundred and thirty millions of our acres are deforested. Where, then, are we going to find the outdoor recreation necessary to our physical, mental, and spiritual welfare? Must the city dweller's recreation be expressed in terms of the paved street, the concrete highway, and the country club?

The West has found the answer in wide and varied use of its forests. The East, many times as densely populated, must follow suit. The scope of the Weeks Law, providing for the acquisition of lands protecting the headwaters of navigable streams, was enlarged by the Clarke-McNary Act, following after a thirteen-year interval. By this Act, Congress admits the importance of providing National Forests in the East, and amends the basic Weeks Law Act by providing authority for purchase of forest lands on the watersheds of navigable streams for timber production as well as for stream-flow protection. Congress has thus set the seal of approval upon this policy, but has not yet authorized appropriations for carrying on the work so endorsed. There is now no clean-cut fiscal or land program for the work, and until Congress defines such a policy, covering a period of years, progress in providing National Forests is necessarily at a standstill.

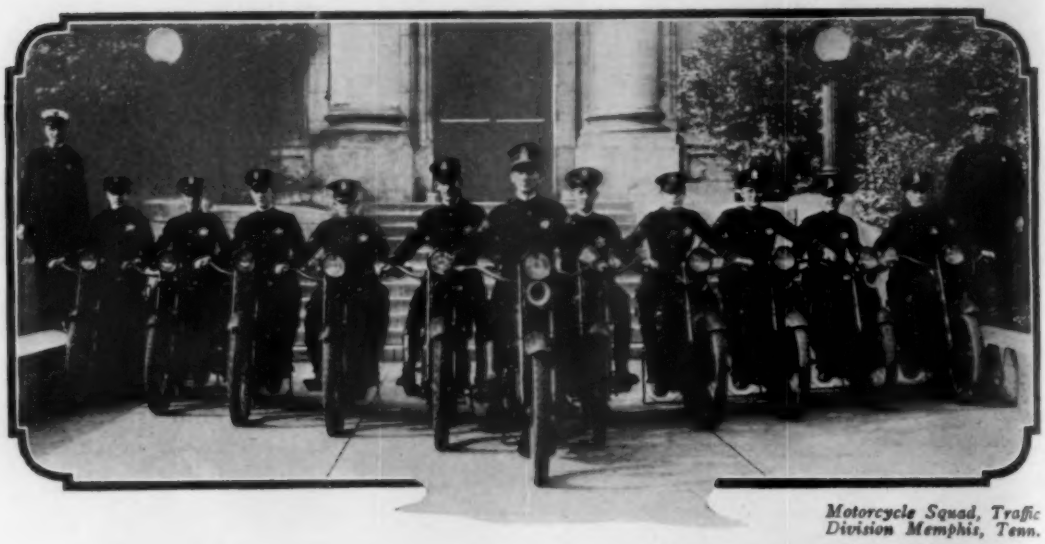
With this program in mind, The American Forestry Association has brought forward a measure providing for a definite policy of appropriations for forest land purchases during the next ten years. The objectives sought are these:

1. Two and one-half million acres, in properly distributed forest units, in the lake states of Minnesota, Wisconsin and Michigan.

2. The continuation of the original program of forest land acquisition in the White and Appalachian Mountains on an enlarged scale, which will add three million acres during the ten-year period.

3. A system of southern forests, aggregating approximately two and one-half million acres, in the pine-producing regions of the South.

The program should have the undivided support of the people in the regions affected. A municipality would not knowingly pass over the reclamation of a worth-while product, wasting at its threshold. Recreation is one of the most needed and most valuable by-products of the forest, particularly useful to the crowded city. In so far as it generates new human energy, it is an economic consideration of first importance.



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Harley-Davidson
The Motorcycle

The City's Legal Rights and Duties

Conducted by A. L. H. Street, Attorney at Law

Municipal Liability for Mob Violence

A MUNICIPAL corporation was not liable at common law for damage done to person or property by a mob, and all of the American decisions recognize that the responsibility exists only when expressly imposed by statute.

An act in force in Massachusetts provides that where property worth $50 or more is destroyed by twelve or more persons riotously assembled, the city or town where the wrong is committed shall indemnify the owner for three-fourths the loss. As stated by the Massachusetts Supreme Judicial Court in the case of Yalenzian vs. City of Boston, 131 Northeastern Reporter, 220, "The object of these statutes, and the policy of the particular statute and similar statutes, is 'to make good, at public expense, the losses of those who may be so unfortunate as, without their own fault, to be injured in their property by acts of lawless violence of a particular kind which it is the general duty of the government to prevent.'"

In the case last cited it was ruled that the Massachusetts statute did not apply to theft of property by a mob, the Court saying: "A theft of property does not signify that the thing stolen has been destroyed or injured; it imports only an injury to the possessory right of the . . . owner to use and enjoy the thing which is capable of being stolen."

The highest court of the land has sustained the constitutionality of the statutes. Considering an Illinois act similar to the Massachusetts law, the United States Supreme Court said in the case of Chicago vs. Sturges, 222 United States Reports, 313:

"Primarily, governments exist for the maintenance of social order. Hence it is that the obligation of the government to protect life, liberty and property against the conduct of the indifferent, the careless, and the evil minded, may be regarded as lying at the very foundation of the social compact. . . . If such legislation be reasonably adapted to the end in view, affords a hearing before judgment, and is not forbidden by some other affirmative provision of constitutional law, it is not to be regarded as denying due process of law. . . .

"The state is the creator of subordinate municipal governments. It vests in them the police powers essential to the preservation of law and order. It imposes upon them the duty of protecting property situated within their limits from the violence of such breaches of the peace as are mobs and riots. . . .

"The power of the state to impose liability for damage and injury to property from mobs and riots includes the power to make a classification of the subordinate municipalities upon which the responsibility may be imposed. It is a matter for the exercise of legislative discretion, and the equal protection of the law is not denied where the classification is not so unreasonable and extravagant as to be a mere arbitrary mandate."

Such statutes have withstood various attacks upon their constitutionality in the state and federal courts. In addition to decisions upholding them as against objections of deprivation of due process of law and class legislation, there are holdings of the highest courts of Ohio, Maryland, Illinois and Pennsylvania to the effect that the laws do not impinge upon constitutional tax and debt limitations. (See 13 American Law Reports, 757.)

The Kansas Supreme Court has probably contributed more decisions on the subject than any other tribunal in the country, and, particularly, as to what mob acts create municipal responsibility. Holding that defendant city was not liable under the local statute for damages sustained by one robbed on the street by three or more persons acting together, the Court said:

"It has not been held that three or more persons who, under previous arrangement between themselves, rob a man on the street, constitute a mob. That would make a mob of every band of three or more persons who combine to commit any crime and together commit that crime. The Legislature did not intend that any three men who deliberately plan to commit robbery, burglary, arson, or any other felony, and who together commit that crime, should constitute a mob. . . . If the Legislature intended to accomplish that result, cities are responsible in damages for much of the crime committed within their limits."

Right to recover under the Kansas statute has been unheld by the Supreme Court of that state where an armed mob took a prisoner from a county jail and hung him; where a

The Police Power
of Good Street Lighting

REMEMBER olden days when as a boy, you scurried home thru the dark, whistling aloud to keep up your courage until you could get within sight of home?

Good lighting now makes the same streets, that you then traversed, as safe by night as by day. This shows how strong the police power of good street lighting really is.

And now the greatest improvement in street lighting in ten years has just been introduced.

Heretofore lighting units distributed the light *symmetrically* all around the unit. Now Holophane has developed a line of *asymmetrical* refractors, which eliminate waste of light outside the street area and direct most of the rays in only four or two directions. The result is 40% to 50% more effective light on the street where it is needed.

What an advantage for your city to have these units installed —and for you to be the one to secure this improvement for your community!

Write for booklet about Holophane 4-Way and 2-Way Refractors.

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prisoner was taken from a sheriff and killed while on the way to the penitentiary; where one was injured while gathering information concerning law violations; where a charivari party took a bride and groom, placed them in a wagon in the night-time, tumultuously drew it by hand up and down a street, and while doing so ran the wagon over a boy and injured him; where a saloon-keeper was injured and his property was destroyed; where prisoners in a city jail combined in severely whipping a fellow prisoner; where a city marshal, who was also a deputy sheriff, went with a number of persons pretending to act as a posse to the home of one charged with a felony, surrounded the house, engaged in a gun fight with him, and killed him; where about 200 men went from a city to a man's home outside the city limits, destroyed his house, and carried away personal property; where four plain-clothes policemen, with a warrant, went to a home, broke down the doors, assaulted the man living there, ransacked the house and frightened the members of his family; where labor unionists assaulted and beat a member of another union; and where one who had been active in the enforcement of the prohibitory liquor law was beaten.

And, as declared by the Court in the Sanger case, "The inability of the city to prevent the action of the mob is no defense." A Federal court in Illinois and a New York court have reached a similar conclusion.

The Pennsylvania and Louisiana Supreme Courts have recognized that non-resident owners of property are entitled to invoke the liability created by statutes of the kind here under consideration.

Various grounds unsuccessfully advanced by municipalities as defenses against liability have been a plea of lack of funds to discharge it, excepting by taxation; that the members of the mob did not reside in the municipality; that property destroyed had become dilapidated, or was devoted to illegal use. In an early New York case (46 Barbour's Reports, 659) a judge said:

"It would be an exceedingly unsafe and dangerous doctrine to establish in any community that a dwelling house or other property might be lawfully destroyed because, for the time being, it was devoted to a purpose which the law characterizes as a common public nuisance. . . . A more complete device for breaking up the tranquality of the community in which it should be permitted, could hardly be devised. Turbulence and outrage would soon become more common occurrences than they already are; resulting, in the end, in more serious injuries to the public morals than those endeavored to be redressed."

Under some of the statutes provision is made, requiring an owner whose property is in danger of mob violence, to notify the municipality. Under such statutes, it has been held in New Jersey, Cailfornia, New York, Pennsylvania and Wisconsin that failure to give such notice precludes enforcement of liability. It seems, however, that the general rule under these statutes is that failure to give notice is excused where the notice could not have been given in time to have avoided the injury.

Items of Municipal Law

City Held Liable for Accident Caused by Traffic "Bumper"

With two members of the Court dissenting, a majority of the Mississippi Supreme Court recently decided that defendant in the case of Haralson vs. City of Vicksburg was liable for injury sustained by plaintiff when his automobile ran over a traffic "bumper" at a street intersection.

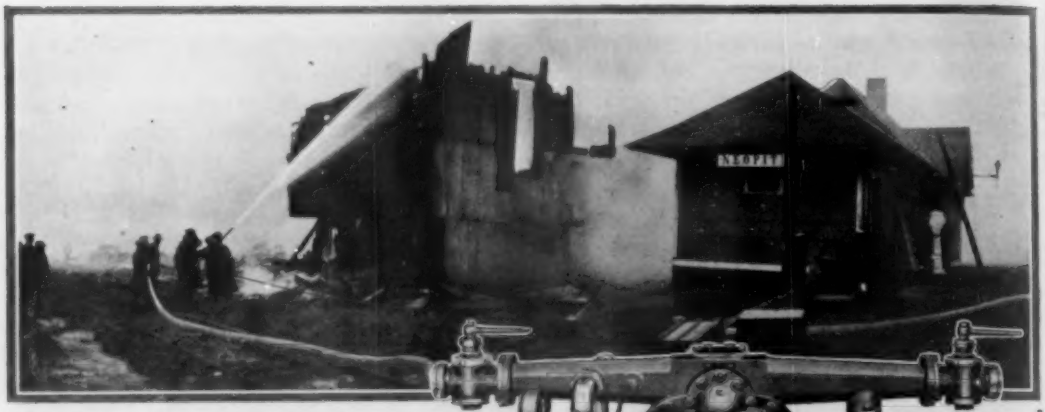
The obstruction was 5 inches high in the center and 5 feet wide at the base, being rounded from the center to the pavement level. A sign marked "bumper" was placed near-by at the street curb line. Plaintiff had frequently passed the point, but on the particular occasion saw neither the sign nor the obstruction. The force of driving over the bumper caused personal injury for which he sued. He testified that he thought the device had been removed. The Court said:

"We do not think the city had the right to place a dangerous device or obstruction in its street, making it unsafe and which would likely injure persons traveling in automobiles over it. . . . This scheme or method of warning drivers appears to us to be unreasonable, too drastic and perilous for the purpose intended. The method of injuring one person in order to prevent danger to another is wrong in principle, as we see it, and is not such a reasonable regulation for the public safety as is warranted under the law, but is negligence."

Traffic Right of Way Ordinance Held to Be Void for Unreasonableness

In the case of Kidd vs. Chissell, 126 Atlantic Reporter, 82, the Maryland Court of Appeals annulled a Baltimore traffic ordinance giving physicians' automobiles right of way at street intersections. It was found that the ordinance conflicted with the state law giving vehicles right of way over those approaching from the left, and that it was also unreasonable. The regulation gave right of way to (1) officers and men of the fire department going to and returning from fires, (2) ambulances, (3) police department vehicles, etc., and (4) "all physicians who have a police permit." Of this ordinance the Court said, in part:

"As applying to the individuals and vehicles embraced in the first, second, and third of those classes, the practicability of the ordinance cannot



Clintonville, Wisc., firemen saving depot in $1,000,000 saw mill plant fire at Neopit, Wisc., after a 38 mile run from Clintonville.

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be doubted. They are all readily recognizable as having the functions which entitle them to the right of way given them in the use of the city thoroughfares. The uniforms of the firemen and policemen and the structure of the fire apparatus, ambulances, and police cars, immediately disclose their identity to those by whom the right of way must be yielded. But a physician or his car, when using the city streets, is not so easily distinguishable.

"No provision is made by the ordinance for any sign by which the mission of the car or the vocation of the occupant is to be revealed. It is said that the defendant had a blue cross on his car, but this was not required by the ordinance. It escaped the notice of the plaintiff and the driver of the automobile in which she was injured, and it does not appear that, if they had observed the cross, they would have been aware of its significance. The sufficiency of such a sign is not a subject of our present inquiry.

The question as to the validity of the ordinance is to be decided according to its terms, and they do not provide that the display of a cross on a physician's car shall be a condition of the exercise of the right of way allowed him, or that he shall have such a privilege only when using a car or other vehicles of a designated type. It is not even stipulated that the right shall be available to him only for the purposes of his professional duties."

A Qualification of the Rule That Property Devoted to One Public Use Is Not Subject to Condemnation for Another Public Use

In the case of Fry vs. Jackson, 264 Southwestern Reporter, 612, the Texas Court of Civil Appeals decided that the city of Dallas could condemn, for use as a reservoir constituting part of its water-supply system, land constituting part of a state highway, thereby necessitating a change in the line of the road. The Court made this important observation:

"While as a general rule property that has been devoted to one public use, such as the road under consideration, may not be taken for another public use when in so doing the use to which the property has been first devoted is entirely destroyed, yet even in such case a greater or more general public interest may justify a departure from the general rule. And it is to be observed that in the case before us it is not necessarily a destruction of Highway No. 39, but a mere change in its routing."

Zoning Notes

Prepared by Frank B. Williams
Author of "The Law of City Planning and Zoning"
From data collected by the Zoning Committee of New York (233 Broadway)
Mr. Williams may be addressed in care of THE AMERICAN CITY, 443 Fourth Avenue, New York

Recent Zoning Ordinances and Enabling Acts

ARKANSAS.—Laws 1924, No. 6.
ALBANY, GA.—Laws 1924, No. 331, p. 404.
MANCHESTER, GA.—Laws 1924, No. 342, p. 663.
LOUISIANA.—Laws, La. 1924, No. 118, p. 186.
CUMBERLAND, MD.—Laws 1924, ch. 560.
TACOMA PARK, MD.—Laws 1924, ch. 103.
PELHAM, N. Y.—Ordinance April 7, 1924.
PELHAM MANOR, N. Y.—Ordinance Oct. 27, 1924.

Recent Zoning Decisions

NEW YORK.—*Matter of Application of Kensington Davis Corporation*, 239 N. Y. 54. A city zoning ordinance to be effective and enforcible must follow the requirements of the statute and designate the districts for specified uses, residential, manufacturing, etc., by definite boundaries (Gen. City Law, sec. 20, subdiv. 25).

An ordinance which defines a residence district or territory as one within 1,000 feet of a factory, in which territory or district more than half the existing buildings are residences, is not a compliance with the statute. So in any given case the proposed building is the center of a circle by which the limits of the residential district are determined. All the property within the circle constitutes a residential district, yet if an application is made for the erection of a factory 300 feet south of the land first mentioned, for the purpose of that application much of the same land might be in another class of district. This is not a division into districts within the meaning of the statute.

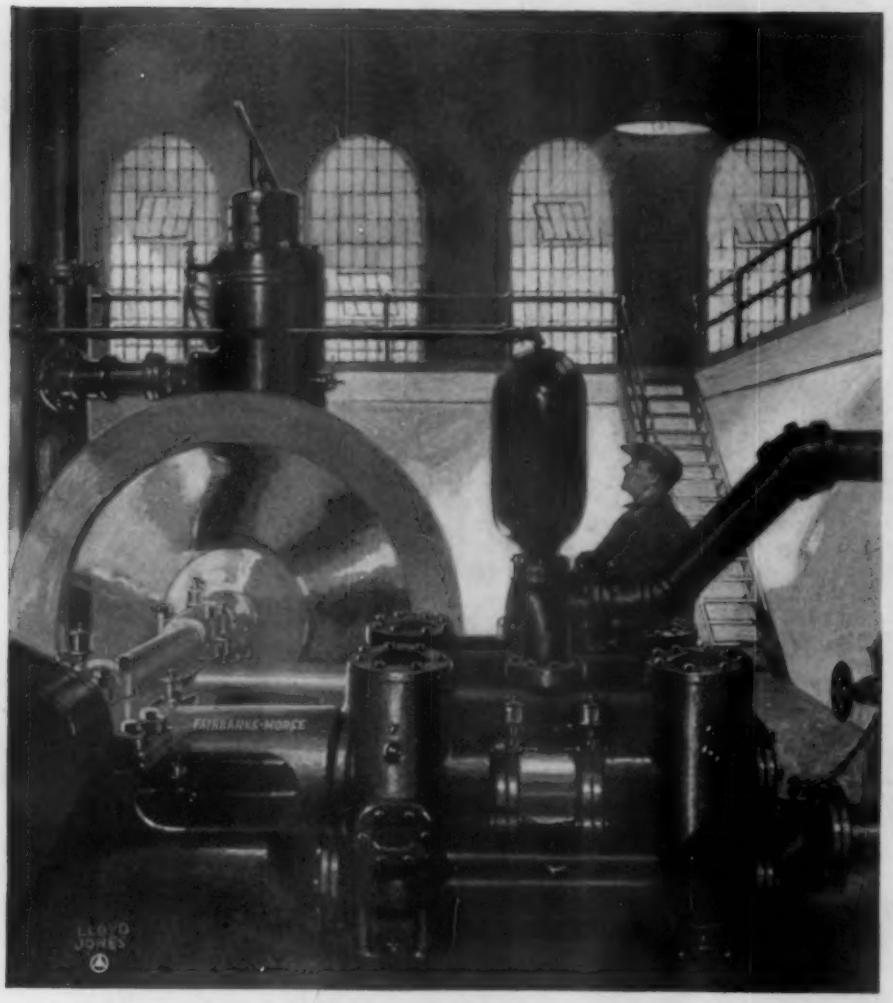
Mineola Home for Cardiac Children v. Village of Irvington, Supreme Court, January 3, 1925. This is an action to restrain the defendant from enforcing provisions of a zoning ordinance restricting the present use of plaintiff's property.

The defendant had not yet asked the Court to enforce the ordinance against the plaintiff. Held that this action could nevertheless be brought at once.

The ordinance provided that an asylum should not be erected in district F, in which plaintiff's property was situated. It was contended that the provision was invalid, not being warranted by the law authorizing provisions with regard to "trades and industries." *Held* that it was justified by the clause authorizing regulation with regard to "the location of buildings, designed for specified uses."

The west line of the district is a "line running north the entire distance of the length of the village, one thousand feet east of the east line of Broadway to the road leading from Broadway to East Irvington." *Held* that the line was run without the least thought as to property lines, or the effect upon values, and the provision in question was therefore arbitrary and unreasonable. The plaintiff was therefore entitled to judgment.

People ex rel. Gross v. Walsh, Supreme Court, reported in *New York Law Journal*, December 23, 1924, p. 1137. Under the New York City Zon-



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ing Resolution the Board of Appeals may permit a garage for more than five cars in a business or residence district provided the petitioner files the consents of the owners of 80 per cent of the frontage affected. In this case neither were the required consents filed nor did the Board prescribe the frontage affected. It seeks to justify its action in granting the permit as a variation of the strict letter of the ordinance in a case of practical difficulty, etc. *Held* that the issuance of the permit was not justified. The Board has not varied but repealed and nullified the provision of the statute. *People ex rel. Cotton v. Leo*, 110 Misc. 519, cited as a similar, but not so flagrant abuse of discretion.

People ex rel. Okun v. Walsh, Supreme Court, reported in *New York Law Journal*, December 19, 1924, p. 1091. The Board of Appeals granted permission to erect a garage on premises almost opposite a street designated as a playground street, on a main congested street, in close proximity to a school and a synagogue. Practically all the owners of adjoining property opposed. *Held* that the public health, safety and general welfare will not be promoted, nor substantial justice done, by permitting the garage. The certiorari order is therefore sustained.

OHIO.—*State ex rel. Feiss v. Guion, Commissioner of Buildings of City of Cleveland, Court of Common Pleas, Cuyahoga County*, September, 1924. The provision of a zoning ordinance creating a one-family house district from which apartment houses are excluded is valid, in spite of the fact that the ordinance of which it is a part is not a comprehensive ordinance embracing, with appropriate provisions, the entire city.

Recent Zoning Literature

The second annual report of the City Planning Commission of Duluth, Minnesota, for the year 1924, contains a chapter with illustrations and a map with regard to city zoning.

In the *City Record* of Cleveland, Ohio, will be found the report of a Committee of the Council with regard to their investigation of the zoning of Pittsburgh, Washington, New York, Montreal, Toronto, Buffalo, Chicago and Cincinnati, which the Committee have recently visited. Their conclusion is favorable to zoning, which they urge the Council of Cleveland to study with care.

Zoning Practice in the New York Region

The Regional Plan of New York and Its Environs, 130 East 22nd Street, New York City, has just published a pamphlet entitled Zoning Practice in the New York Region. The pamphlet was prepared by Edward M. Bassett, Esq., Director of the Legal Division of the Regional Plan, and counsel of the Zoning Committee of New York. Mr. Bassett has been active in the law and practice of zoning in this country ever since zoning here was first proposed. The pamphlet is intended primarily as an aid in the practice of zoning in the region, in the states of New York, New Jersey and Connecticut, in the environs of New York City, but is equally valuable to the zoner everywhere in this country. In it Mr. Bassett gives the law and practice of zoning in the light of his practical experience, continued up to the day of its publication. This publication is already recognized as invaluable in the field of zoning and is having a wide sale.

The Municipal Bond Market

By Sanders Shanks, Jr.
Editor, *The Bond Buyer*

WITH the beginning of the year came the announcement that many large municipal borrowers were in the market for funds to finance various improvements desired by the taxpayers. Philadelphia, Rochester, Chicago, Kansas City, Detroit and numerous other places were borrowers during the month. Down to the middle of the month, new issues brought prices which showed a decline in the market since last October, when the peak of the 1924 market was reached. Compared with a year ago, however, current municipal borrowers are placing their loans at considerably lower net interest rates. For instance, the city of Rochester sold $5,000,000 4¼'s in January, 1924, at a net cost to the city of 4.17 per cent, as against $5,000,000 bonds sold in January, 1925, on a 4.08 per cent basis. The city of Philadelphia paid 4.18 per cent for a loan of $5,000,000 a year ago, whereas a few weeks ago $12,000,000 4's were sold on a 3.97 per cent basis.

The city of Detroit has announced an offer of $19,550,000 of city bonds. Last May, when that city floated a $19,680,000 issue, the purchasers offered a 4.48 per cent basis for 4¼ per cent and 4½ per cent bonds. With the market in splendid condition, due to unusually active business during the first half of January, Detroit should make a much better deal this year. The sale is scheduled for January 26.

The following list of bonds sold during the month of January is sufficiently diversified to serve as a guide to the value of school and city bonds throughout the country:

Amount	Borrower	Maturity	Int. Rate (%)	Net Int. Cost (%)
$11,000,000	Philadelphia, Pa.	1975/45	4	3.98
1,000,000	Philadelphia, Pa.	1940	4	3.97
500,000	Cambria Co., Pa.	1926-48	4¼	4.00
571,000	Harrisburg, Pa.	1930-55	4¼	4.02
4,800,000	Rochester, N. Y.	1926-55	4¼	4.08
1,946,000	Yonkers, N. Y.	1926-65	4¼	4.13
1,250,000	Baltimore Co., Md.	1927-49	4½	4.18
926,000	Bridgeport, Conn.	1926-55	4¼	4.20
1,337,000	Essex Co., N. J.	1926-64	4¼	4.22
5,200,000	Kansas City, Mo.	1942	4½	4.25
7,530,000	Chicago, Ill.	1927-44	4	4.29
947,000	Orange, N. J.	1927-64	4½	4.31
1,100,000	Cincinnati, Ohio, Sch. Dist.	1926-50	4½	4.31
1,250,000	Duluth, Minn.	1927-38	4¼ & 4½	4.35
3,000,000	Porto Rico	1950-55/43	5	4.43
650,000	Maricopa Co., Ariz. Sch. Dist. No. 1 (Phoenix)	1945	5	4.73
800,000	Marshall Co., Ia.	1928-39/29	5	4.99

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From the International Union of Cities

Items translated from "Tablettes Documentaires Municipales" by Stephen Child, 538 Merchants Exchange Building, San Francisco, Calif., to whom requests for further information regarding this source of civic documentation should be addressed

City Planning and Architecture in Austria. 71+72

A general scheme in regard to architecture and the organization of building construction work has recently been inaugurated in Austria. At the bottom of this organization are the cooperative building societies for the construction of houses, by means of which everyone pays something towards construction. At the top there are the cities and the state itself. In the Austrian Union for the Creation of Housing Colonies there is assembled an organization that is in close contact with municipalities, with all the cooperative building societies, both large and small, aiding all these. This "Union" is at the present time preparing a project for the extension of Vienna in which it is hoped to include not only its extension outward, as a result of which plans are being made for residential and industrial quarters and for means of communication, but also for the regulation of heights of buildings; in other words, what we would term zoning for use and for height. Frequent strips of verdure or open spaces are to cross the built-up districts with elevated structures to conduct the inhabitants across these colonies to the open country. Effort is to be made to have the type of house take something of its ancient character. It is realized that the architects have a preponderant role in the consummation of this idea.

Cologne, Germany, Plans for Growth. 71.31 (43.42) (016)

During the past year there has been prepared and published a monumental report dealing with the problem of the future growth of Cologne. Two of Germany's experts in city planning, engineers Schumacher and Arntz, have been at work upon this problem for three years past. It is assumed that the population of Cologne will increase threefold, and plans are made for this increase. To do away with the danger to the public health that such an increase in population will present, there is provided a group of open spaces upon the ground now occupied by the old fortifications, of which there are two belts, an exterior and an interior. It is proposed to bind these two girdles of open land together by parkways radiating out from the city. A great forest belt will separate the residential districts from the lignite mines. These are great open pits, in some instances half a mile or more in length, several hundred feet across and 100 feet or more in depth. It is believed that this scheme will give a satisfactory aid in the solution of any health problem that may result from the future growth of Cologne. The problem of means of communication is a very complicated one, for Cologne is above all a commercial center, its development influenced by the many transportation lines operated on the Rhine as well as by an enormous railroad traffic. Several freight stations are provided in the new plan so that the Central Station may be reserved for passenger traffic, main and suburban lines. Several new bridges across the Rhine are proposed, also a rapid-transit subway system extending from the heart of the city out into the suburbs. Already considerable opposition to this feature of the plan has appeared, an elevated railway system having been suggested instead of a subway. The treatment of the two banks of the Rhine is particularly interesting and pleasing. An effort is to be made to define the extent of the radius of activities of the great centers, Cologne, Dusseldorf and Essen, and their significance in the economic conditions of West Germany. The industrial development of Cologne is based on metallurgical industries and the manufacture of machinery. It is proposed to confide the realization of these great plans to a group of architects of this region as being fitted to secure best results.

Improving Health Conditions at Paris. 61.438.3 (44.361)

lissement St. Ansfridus."

Following thorough investigations, the Paris Municipal Council has voted a credit of 21,154,000 francs for the purpose of improving the condition of unsanitary blocks of houses; 17 such blocks in the Third and Fourth Wards of Paris are to be improved by the city. These include 347 houses with 12,650 inhabitants. The condition of certain blocks has already been improved by the owners—a state of affairs that it is reported is liable to give rise to some difficulties when it comes to the problem of dispossessing existing tenants.

Concrete for House Construction in Holland. 69.35 (492)

At Rotterdam and Bois-le-Duc large groups of houses have recently been built entirely of concrete. The project has been carried out in a wholesale manner with standardized parts used throughout. It is claimed that concrete is superior to brick as regards physical, esthetic and economic conditions. For both exterior and interior walls concrete made with cinders has been employed, while a Dutch process known as "Kossel" is used for the terraces—the exterior walls being plaster-covered. Economy of construction has been necessary in view of the low rentals invested; 1,400 houses have been built at prices ranging from 2,700 to 3,000 florins, not including the land. After a short apprenticeship great numbers of the unemployed crude laborers have been at work on the project. While it is not claimed that cement is definitely proved to be better than brick for such houses, it is believed good results have been secured, and, thanks to the employment of this method, a much more rapid solution of the housing shortage.

Garden Cities in Latin America: Argentine, Uruguay, Chili, Brazil, Colombia, Central America and Mexico. 71.313 (72 + 8)

In all the above-mentioned countries there have been recently going forward a considerable number of new garden city schemes. The movement to help the housing shortage really began as far back as 1887, when Brazil passed a law according special privileges to manufacturing concerns that provide convenient lodgings for their employees. The United Fruit Company and various mining and oil companies have all done a good deal of this sort of development work; so has the Argentine Government at the city of Buenos Aires and the Government of Chili at Santiago. There has also been an interesting cooperative effort of this sort among several of the coffee planters of Nicaragua, and in Mexico for the postal and municipal employees. It is reported that in most cases the architects have abandoned the Spanish and Moorish types of architecture and adopted the English cottage type for their housing.

Housing Colonies at Utrecht, Holland. 71.43 (492.8)

Amersfoort, in the Province of Utrecht, has recently erected a group of houses to accommodate 110 families. These are to be used for both working-class and middle-class people. The houses are arranged in pairs and in groups of from four to six. The land for the project was donated by the city, for an organization known as "l'etablissement St. Ansfridus.

A Stadium in the Schönbrunn Park of Vienna, Austria. 71.6:72.582.6 (43.6)

It is proposed to erect in that portion of the Schönbrunn Park, Vienna, known as the Pheasants Garden, a great circular stadium of reinforced concrete to seat 90,000 people and to provide for all sorts of athletic contests. Gardens and lawns will be designed to accomplish the merging of this structure into the park.

City Planning at Paris, France. 71.31 (44.361)

The city of Paris has for some time been at work upon the problem of removing its fortifications and planning for the utilization of the area thus set free.* During the past year bastions 48 and 63 have been removed, giving some 12 or 14 acres of land which has now been placed on the market. At bastion 48, 48 house lots were developed, varying in size from 470 to 700 square metres, and from 64 to 70 per cent of the area has been thus utilized, the remainder devoted to streets. At bastion 63 of the 15,500 square metres placed on sale, 7,200 square metres will be immediately covered with buildings. The public streets built to open up these lands are to be about 12 metres in width, with a setback on each side of the street of 4 metres to be devoted to front yards and gardens.

* See page 175 of this issue.

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Public Employment Offices—Their Purpose, Structure and Methods.—By Shelby M. Harrison, Director, Department of Surveys and Exhibits, Russell Sage Foundation, in collaboration with Bradley Buell, Mary La Dame, Leslie Woodcock, and Frederick A. King. Russell Sage Foundation, New York. 1924. XVII + 685 pp. Views, diagrams, forms, tables. $3.50.

A very thorough study of conditions, policies, methods, and experience in public employment office work, the result of skilled investigation and valuable criticism of the findings. The material is presented under the following main divisions: The Problem Stated; Agencies and Methods by Which Employment Work Is Now Being Done and the Place of the Public Employment Bureau Among Them; Organizing and Administering a National Employment Service; Methods of Organizing and Performing the Placement and Administrative Functions of a Local Office; Methods of Working with Groups Requiring Special Service.

Rats and How to Destroy Them.—By Mark Hovell, F.R.C.S. With Introduction by S. L. Bensusan. John Bale, Sons & Danielsson, Ltd., 83-91 Great Titchfield Street, Oxford Street, W. 1, London, England. 1924. XLII + 465 pp. Illustrated. $3.50 postpaid.

This volume is said to be the most complete and reliable work on rat destruction ever printed. It is based on many years of experience and study of the rat menace and of methods of dealing with it, and is written with noteworthy explicitness for both the learned and the simple, and with full understanding of the great destruction wrought by rats from their hiding-places in homes, gardens, warehouses, public buildings, ships, and sewers.

Selected Articles on Prohibition—Modification of the Volstead Law.—Compiled by Lamar T. Beman, A.M., LL.B., Attorney at Law, Cleveland, Ohio. The H. W. Wilson Company, New York. 1924. LXXII + 380 pp. $2.40.

This is an entirely new volume which aims to set forth the results of prohibition to date, as shown by the arguments presented by both sides, and also to set forth the arguments pro and con concerning the proposed modification of the Volstead Act to legalize the sale and manufacture of light wines and beer. In addition to the reprints of selected articles there are briefs and a selected bibliography.

The Diving and Swimming Book.—By George H. Corsan, Sr., author of At Home in the Water. A. S. Barnes and Company, New York. 1924. XVII + 162 pp. 115 illustrations. $3.00 postpaid.

The author of this useful and enlivening book hopes that within the next ten years swimming will be made compulsory in every public school in the world. He has developed a method of teaching swimming to large numbers simultaneously. This volume gives full instructions for teaching swimming to beginners and to those who are experienced in the water, with chapters on life saving, stunts and fancy swimming, water sports and swimming meets, etc. The chapter on Natatoriums is of special interest to readers of **The American City** in its dealing with the construction and administration of swimming pools.

The Influence of Housing on the Use of Leisure.—By Raymond Unwin, F. R. I. B. A., Past President of the Town Planning Institute. Extract from the International Labour Review, June, 1924. 16 pp. Prepared for the International Garden Cities and Town Planning Federation, of which the author is the Honorary Treasurer. "If then we may put as the basic necessity for the good utilization of leisure, sufficient space in the home and about the home, the adoption of the Garden City principle would offer an unrivalled advantage as compared with any other form of development." (Apply to the International Labour Office, Geneva, Switzerland.)

A Study of Violent Deaths.—Covering deaths registered in Atlanta, Birmingham, Memphis and New Orleans for the years 1921 and 1922. By J. J. Durrett, M. D., Superintendent, and W. G. Stromquist, Sanitary Engineer, Department of Health, Memphis, Tenn. Including an article on Crime Prevention, by Rowlett Paine, Mayor of Memphis. 38 pp. including tables and charts in the text, and in addition to inserts giving tables. (Apply to the Department of Health, Memphis, Tenn.)

First National Conference on Street and Highway Safety.—51 pp. Apply to the Conference, Department of Commerce, Washington, D. C.

This is the consolidated report of the First National Conference on Street and Highway Safety, which was held in Washington, December 15-16, 1924, at the call of Honorable Herbert Hoover, Secretary of Commerce. It contains the address of the President of the United States to the Conference, and the opening address by Secretary Hoover. The consolidated report here presented was formulated from the reports of the eight committees of the Conference, four of which were given in the January issue of **The American City**, beginning on page 25.

Proceedings of the Sixteenth National Conference on City Planning, Los Angeles, Calif., April 7-10, 1924. Published for the Conference by The Norman, Remington Co., Baltimore, Md. 1924. 240 pp. $2.25 postpaid.

The papers delivered at the Conference, with the discussion on them, covering many phases of the broad subject of city planning. Including also the resolutions adopted by the Conference, and its organization, with a list of its publications.

Problems of Citizenship.—By Hayes Baker-Crothers, Director of the Course in Problems in Citizenship, Dartmouth College, and Ruth Allison Hudnut. Henry Holt and Company, New York. 1924. XIV + 514 pp. $2.75 postpaid.

The "problem" method has become valuable in all courses of study. This introductory text-book to the social sciences is devoted to problems of national scope, a study of which gives an essential background for an understanding of municipal affairs. After a statement of the nation's ideals, the following problems are discussed; The Newspaper; Immigration; The Negro; The Woman Movement; Industry; Civil Liberty; International Relations; War and Peace.

Health in Home and Neighborhood.—By Maurice A. Bigelow, Ph.D., Professor of Biology, and Director of the School of Practical Arts, Teachers College, Columbia University; and Jean Broadhurst, Ph.D., Associate Professor of Biology, Teachers College. Silver, Burdett and Company, Newark, N. J. 1924. XII + 328 pp. Illustrated. 84 cents postpaid.

An elementary text-book on the sanitary arrangement and management of the home, the school, and the neighborhood, with special reference to the effect on the health of the individual. The chapters are: "Our Food Supply and How We Use It; Our Water Supply and Health; Healthful Heating of Our Buildings; Healthful Changes of Air in Our Buildings; Healthy Living and Light; Clean and Healthful Homes and Neighborhood; Keeping Well in Home and Neighborhood; Improving Community Health and Welfare.

Child Dependency in the District of Columbia.—By Emma O. Lundberg and Mary E. Milburn. An interpretation of data concerning dependent children under the care of public and private agencies. 1924. 160 pp. Diagrams, tables. This study was undertaken at the request of the Board of Children's Guardians of the District of Columbia and also of the Washington Council of Social Agencies. Publication No. 140 of the Children's Bureau of the U. S. Department of Labor. 20 cents. (Apply to the Government Printing Office, Washington, D. C.)

The Use of Chlorine to Assist Coagulation.—By Robert Spurr Weston, 14 Beacon Street, Boston, Mass. Reprinted from the Journal of the American Water Works Association, March, 1924. 5 pp. Tables. (Apply to the author.)

Education in Albany.—"An Opportunity and a Business." Issued by the Education Committee of the Albany Chamber of Commerce, Albany, N. Y. 87 pp. Illustrated. It is possible, in Albany, for a pupil to spend one year in kindergarten, eight years in grades, four years in high school, and four years in State College, a total of seventeen years of training, without the payment of tuition. This book presents in concrete form these great educational advantages and those of the professional schools. William Mansfield is the Chairman of the Subcommittee on Schools that prepared the Bulletin. (Apply to Roy S. Smith, Executive Manager, Albany Chamber of Commerce, Albany, N. Y.)

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The Voting Machine—Report on the History, Use and Advantages of Mechanical Means for Casting and Counting Ballots.—Prepared by T. David Zukerman, Director, Political Research Bureau of the Republican County Committee of New York. January, 1925. 80 pp. Covering the history of the attempt to install voting machines in New York City, the history of the invention and development of the machines, their legal history, the extent of their use, their advantages and economy, the objections raised by their opponents, and the obstacles to their extension. (Apply to the author, 150 Nassau Street, New York, N. Y.)

The Child Labor Amendment.—Two pamphlets published by the Organizations Associated for Ratification of the Child Labor Amendment, 532 Seventeenth Street N. W., Washington, D. C.: The Children's Amendment, 37 pp., 10 cents; The Struggle for the Child Labor Amendment as Revealed by the Massachusetts Referendum, 21 pp., 5 cents. (Apply to Clara Mortenson Beyer, Executive Secretary of the Organizations.)

Juvenile Delinquency and Recreation.—By Eugene T. Lies, of the Playground and Recreation Association of America. Reprinted from "Community Treatment of Delinquency," in the Annual Report and Proceedings of the National Probation Association, 1924. A protest against the blindness of some social workers and parents to the essential need of play in the lives of children, in order that they may not become economic and social liabilities. 8 pp. (Apply to the Playground and Recreation Association of America, 315 Fourth Avenue, New York, N. Y.)

International Association of Chiefs of Police.—Proceedings of the 31st Convention, Montreal, Canada, July 14-17, 1924. 166 pp. (Apply to George Black, Secretary of the Association, Wilmington, Del.)

The Bugaboo of the Tax-Exempts.—By Harold S. Buttenheim, Editor of The American City. 3 quarto pp. in The Kiwanis Magazine, December, 1924. This article questions the wisdom of handicapping municipal progress in the attempt to secure an absolutely equitable basis of taxing incomes. It also shows where tax-exempt securities are held and favored, quotes an advocate of "wiser, not smaller municipal expenditures," and suggests increased inheritance taxes as a solution of the problem of reaching large, unearned incomes. (Apply to the Magazine, 164 West Jackson Boulevard, Chicago.)

Nobody's Business.—"And because it was nobody's business, the town of Bridgewater, Mass., was (and still is) without water-supply for fire protection, and the oldest state normal school in the country was wiped out with a loss of over a million dollars!" This is the text of a bulletin (No. E12) of 4 quarto pp. issued by the National Fire Protection Association, 40 Central Street, Boston, Mass. Illustrated. (Apply to Franklin H. Wentworth, Secretary of the Association.)

Child Labor.—State Child Labor Standards, and State Compulsory School Attendance Standards Affecting the Employment of Minors, September 15, 1924. 1924 Legislation included so far as available at date. Large sheets of tabulated material summarizing these facts. Issued by the Children's Bureau, U. S. Department of Labor, Washington, D. C. (Apply to the Bureau.)

Municipal Licenses.—By A. F. Bray, City Attorney, Martinez, Calif. 4 pp. in Pacific Municipalities for November, 1924. A discussion of the requirements of licenses for revenue purposes, as to the power of cities to license business trades and occupations, and the advisability of using this method. (Apply to Pacific Municipalities, Chancery Building, San Francisco, Calif.)

The Ideal Ice Cream.—By C. V. Craster, M.D., D.P.H. A paper read before the annual convention of the Association of Ice Cream Manufacturers of Pennsylvania and New Jersey, at Newark, N. J., October 15, 1924. 5 pp. in the Monthly Bulletin of the Department of Health, Newark, N. J., for October, 1924. Showing the importance of the inspection of ice cream, and the standards of its composition and manufacture which should insure the advantages of its use. (Apply to the Department of Health, Newark, N. J.)

Adult Education and the Library.—Vol. I, No. 1, November, 1924, of a Bulletin issued eight times a year, November, December 15 and 25, February, April, June, August, September) by the American Library Association, 86 East Randolph Street, Chicago, Ill. 8 pp. This first number explains the broad meaning of adult education and announces the appointment, by the Association, of a Commission on the Library and Adult Education, to study the whole problem. Containing a list of selected readings on the subject. (Apply to the Association.)

The Comparative Tax Rates of 184 Cities, 1924.—By C. E. Rightor, Detroit Bureau of Governmental Research. 11 pp in the December, 1924, issue of the National Municipal Review, including 7 pp. of tabulations. Covering a statement of the actual tax rates upon property by purposes; the adjusted total rate upon the basis of a uniform assessed valuation; and the 1924 tax burden upon an estimate of the legal basis of valuation. Reprints available, 10 cents each; $5.00 per 100. (Apply to the National Municipal League, 261 Broadway, New York, N. Y.)

Public Employment in Detroit.—A study, by the Detroit Bureau of Governmental Research, issued November 30, 1924, of the matter of salary standardization in relation to the employees of the city of Detroit. This covers the need of such standardization, the charter provisions for it, the history of the present effort toward this end, and an analysis of the resulting conditions and outlook. 8 pp. (Apply to the Bureau, 316 East Jefferson Avenue, Detroit, Mich.)

Suggestions on Traffic Control for Consideration at the National Conference on Street and Highway Safety.—Prepared December, 1924, by Wm. P. Eno, Chairman of the Board, Eno Foundation for Highway Traffic Regulation, Inc., 1771 N Street N. W., Washington, D. C. 36 pp. Part I contains: a suggested standardized empowering ordinance, to be developed later, if possible, into a state or federal law; the Council of National Defense Code of General Highway Regulations; reasonable requirements as to licenses, permits, registrations, and vehicle lights; and suggestions as to traffic courts. Part II contains material on rotary or gyratory traffic, the storage of dead vehicles on roadways, the prevention of accidents, etc. (Apply to the author.)

The Effect of Vaccination.—In the Weekly Health Review of the Detroit Department of Health, week ending, Dec. 6, 1924. Edited by Carl E. Buck, D. P. H., Epidemiologist. 3 typewritten pp. Detroit's experience with smallpox in the fall, winter and spring of 1923-24 shows the importance of general vaccination and re-vaccination of the population. (Apply to the Department of Health, Detroit, Mich.)

American Prison Association.—Proceedings of the Annual Congress of the Association, Boston, Mass., September 13 to 19, 1923. 350 pp. Valuable material on the care of the criminal and the protection of society. (Apply to E. R. Cass, General Secretary, American Prison Association (also General Secretary, Prison Association of New York), 135 East 15th Street, New York, N. Y.)

A New Light in Prison Life.—By Frank Moore, Superintendent, New Jersey Reformatory, Rahway, N. J. Read before the American Prison Association, at Salt Like City, Utah, August 15, 1924. 12 pp., handy size. Showing the method of teaching prisoners what is right, and how to do what is right, that is used in the New Jersey Reformatory. This is done through "Citizen Friends," who instruct groups of prisoners each week in character building. (Apply to Mr. Moore.) Reference is made in this address to "The Honesty Book," issued by the National Surety Company, 115 Broadway, New York, N. Y., which contains valuable material.

How Delaware Can Finance a State School Building Program.—A plan proposed by Pierre S. du Pont. Published by The Delaware School Auxiliary Association, 4116 du Pont Building, Wilmington, Del., being Volume VI, Number 3, Bulletin of The Service Citizens of Delaware. 59 pp. Mr. du Pont believes that by this plan the public schools of Delaware can be brought up to 100 per cent within five or six years. (Apply to the Association.)

Linking Up Railroad and Water Transportation.—By Dorsey W. Hyde, Jr., Assistant Manager, Civic Development Department, Chamber of Commerce, U. S. A., Washington, D. C., formerly with Packard Motor Car Company. Publication No. 1834, reprinted from "The Automobile and Its Problems," in the November, 1924, issue of The Annals of the American Academy of Political and Social Science, 39th Street and Woodland Avenue, Philadelphia, Pa. Discussing the motor vehicle as a distinct unit in the transportation system, of growing importance as a public utility or common carrier, and the need of understanding it and providing for it as such. (Apply to The Annals.)

Publications of the United States Public Health Service.—May, 1924. 103 pp. (Apply to Government Printing Office, Washington, D. C.)

Statutes of Kansas Cities.—Special Index to statutes relating to cities, to be used in connection with Revised Statutes of Kansas, 1923. Compiled by Harvey Walker, Assistant Secretary, The League of Kansas Municipalities, Lawrence, Kans. Bulletin No. 50 of the League. Cloth, $4.00; paper, $3.00. 72 pp. (Apply to the League.)

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Fighting Fire by Modern Methods.—Published by The National Board of Fire Underwriters, 76 William Street, New York, N. Y. 36 pp. Illustrated. This material was prepared by the Engineering Staff of the Committee on Fire Prevention and Engineering Standards from data compiled in the course of its surveys of cities throughout the country. Excellent and valuable for local fire departments. (Apply to the publishers.)

Progress in Child Health.—Second Annual Report of Courtenay Dinwiddie, General Executive, to the Directors of the American Child Health Association, presented at the second annual meeting of the Association, at Kansas City, Mo., October 14-16, 1924. 43 pp. Reprinted from the November, 1924, issue of Child Health Magazine. Of especial interest to our readers is the General Objective II of the Association—working through states and communities in building up organization and the development of local and state-wide programs, also the program of 1924. (Apply to the Association, 370 Seventh Avenue, New York, N. Y.)

Oil Pollution at Bathing Beaches.—Prepared by a committee consisting of F. W. Lane, Bureau of Mines; H. F. Fisher, American Petroleum Institute; and P. H. Harding, American Steamship Owners' Association. 13 pp. in December 19, 1924, issue of Public Health Reports of the United States Public Health Service. The investigation was carried out from November 1, 1922, to February 1, 1923, and the data here presented have been selected from a much larger mass of material. In most localities contact was made with representatives of chambers of commerce, health officers, and recreation commissions, who are interested in beaches as a vital factor in the public health. 5 cents. (Apply to Government Printing Office, Washington, D. C.)

National Education Association.—Addresses and Proceedings of the Sixty-Second Annual Meeting, held at Washington, D. C., June 29-July 4, 1924. XIII + 1,085 pp. Reporting present-day educational needs and theories, and covering the principal problems of organization and administration, with valuable material on special phases of applied education. Including a list of the Association's publications and also a list of Fifty Educational Books of 1923. (Apply to the Association, 1201 Sixteenth Street N. W., Washington, D. C.)

Pennsylvania Cities of the Third Class.—Tabulated statistics of police and fire departments of these cities, in blue-print form. (Apply to J. Herman Knisely, Director, Bureau of Municipalities, Department of Internal Affairs, Harrisburg, Pa.)

The Exploitation of Immigrants.—Report of the Joint Legislative Committee of the state of New York appointed in 1923 to investigate this matter. Legislative Document (1924) No. 76. 166 pp. Views, diagrams, tables. "The chairman and members of the committee feel that the cruelty and inhumanity of the practices whereby the immigrant to this country is defrauded demand a remedy; even if this were not apparent, the community for its self-protection should suppress a system which tends to make every man suspicious of his neighbor and eventually to educate the immigrant that the way to prosperity in this country is to resort to cunning, trickery and crime." (Apply to the Secretary of State, Albany, N. Y.)

What You Should Know About Your City Government (St. Joseph, Mo.)—By W. K. Seitz, City Engineer, St. Joseph. A series of fifteen articles on the theory and practice of the government of St. Joseph, written at the request of The Gazette, from March 26 to April 14, 1924. They cover the charter, the functions of the Mayor and Council, the Boards of Public Works, Parks, Welfare, and Health, the Fire and Police Departments, the legal work, the exercise of the recall, initiative and referendum, the library, building inspection, city engineering and financing. (Apply to the author.)

Better Homes.—Five pamphlets: Guidebook for Better Homes Campaigns, Better Homes Week, May 10 to 17, 1925, 65 pp., illustrated, 15 cents; How to Furnish the Small Home, by Mrs. Charles Bradley Sanders, 34 pp., illustrated, 25 cents; How to Own Your Home, by John M. Gries and James Taylor, 34 pp., illustrated, 15 cents; Plan Book of Small Homes, prepared by The Architects' Small House Service Bureau of the United States, Inc., 34 pp., illustrated, 25 cents; Home Music and Home Play, 16 pp., 10 cents. (Apply to Better Homes in America, 1653 Pennsylvania Avenue, Washington, D. C.)

Municipal Aeroplane Landing Fields Bibliography.—Compiled by R. E. Gossage. In January 7, 1925, Municipal Reference Library Notes. 2 pp. (Apply to Miss Rebecca B. Rankin, Librarian, Municipal Reference Library, Room 512, Municipal Building, New York, N. Y.)

A State-Wide Milk Sanitation Problem.—By Leslie C. Frank, Associate Sanitary Engineer, United States Public Health Service. In November 7, 1924, number of Public Health Reports, issued weekly by the United States Public Health Service. 23 pp. Describing the state-wide program of the Alabama State Board of Health and discussing the conditions which make such a program necessary. Containing the standard milk ordinance for Alabama municipalities, adopted in 1924 by the Alabama State Board of Health. (Apply to the Government Printing Office, Washington, D. C.)

Let's Work for More Public Golf Courses.—By Theodore Wirth, Superintendent of Parks, Minneapolis, Minn. Reprint from the March-April, 1924, issue of Parks & Recreation, the official publication of the American Institute of Park Executives. 8 pp. Illustrated. Commending the providing of golf links in public parks and the financing of them in part by fees. A basic plan and rules of management of park golf courses are suggested. (Apply to the author.)

Charity Service Reports, Cook County, Ill.—Department of Outdoor Relief, County Hospital, Institutions at Oak Forest, Juvenile Court, Juvenile Detention Home, Bureau of Social Service, and the Adult Probation Department, together with the Annual Message of the President of the Board of Commissioners of Cook County, for 1923. (Apply to Board of Commissioners of Cook County, Chicago, Ill.)

Juvenile Delinquency.—Bulletin No. 68, a selected bibliography on this subject, supplementing Bulletin No. 42 of the Russell Sage Foundation Library, 130 East 22nd St., New York, N. Y. December, 1924. 4 pp. 10 cents. (Apply to the Library.)

Chicago's Local Transportation Problem.—Special Message of Honorable William E. Dever, Mayor, submitted to the City Council October 22, 1924. 23 quarto pp., besides map. Discussing Chicago's need of a unification of existing traction services, the building of subways to supplement these services, the building of extensions to unserved portions of the community, and a financial plan for further extensions to keep pace with the city's growth. (Apply to Al. F. Gorman, City Clerk.)

Fatalities from Accidents, 1923.—16 pp. of typewritten tabulated material with introductory comment. One-fifth of all fatalities from accidents in the United States in 1923 were the result of automobile accidents. (Apply to the Department of Commerce, Washington, D. C.)

Washington, Lincoln and Lee Birthday Programs.—Mimeographed bulletin of The American Legion, giving suggestions for the celebration of these anniversaries in the spirit of Americanism. January 3, 1925. 5 quarto pp. (Apply to the Legion, National Headquarters, Indianapolis, Ind.)

International Health Education Conference.—Report of the Conference, which was held June 28-July 6, 1923, in San Francisco as a part of the World Conference on Education under the auspices of the National Education Association. 346 pp. (Apply to American Child Health Association, 370 Seventh Avenue, New York, N. Y.)

National Organization for Public Health Nursing.—Proceedings of the 1924 convention of the Organization, in the September, 1924, issue of The Public Health Nurse. 72 pp. (Apply to the Organization, 370 Seventh Avenue, New York, N. Y.)

League of Cities of the Third Class in Pennsylvania.—Proceedings of the Twenty-fifth Annual Convention, held at Sharon, Pa., September 2-4, 1924. 159 pp. (Apply to Fred H. Gates, Secretary of the League, Wilkes-Barre, Pa.)

Westchester County (N. Y.) Park Commission.—Report for year ending April 30, 1924. 85 pp. Many beautiful views; maps. A comprehensive view of the general plan for the development of the water-front parks and interior parks and parkways of the county, with details as to the progress of the various projects. Including the financial report, and the Westchester County Park Law. Jay Downer is the Chief Engineer of the Commission. (Apply to James W. Howorth, Secretary, 72 West Pondfield Road, Bronxville, N. Y.)

Americanization Questionnaire.—By Catherine A. Bradshaw, Executive Secretary, Portland Americanization Council; State Chairman of Americanization, Oregon Federation of Women's Clubs. Published by Noble and Noble, 76 Fifth Avenue, New York, N. Y. VIII + 147 pp. Containing the questions usually asked of aliens applying for citizenship papers, together with their answers and other valuable information for those interested in Americanization work. 75 cents. (Apply to the publishers.)

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When writing to Advertisers please mention THE AMERICAN CITY—Thank you.

Regulations of the National Board of Fire Underwriters for the Fire Department Hose Connections for Sprinkler and Standpipe Systems.—Recommended by the National Fire Protection Association. 1924. 8 pp. Illustrated. These specifications cover only the most important features of construction and performance, and do not require adherence to any particular design. Several manufacturers already furnish connections meeting these specifications. (Apply to the Association, 40 Central Street, Boston, Mass.)

Chicago Drainage Canal.—Recommendations, including Brief Statement of Findings and Conclusions by the Engineering Board of Review of the Sanitary District of Chicago on the Lake Lowering Controversy and a Program of Remedial Measures. December 20, 1924. 17 pp. The facts regarding the Chicago Drainage Canal are here set forth, with a plan for continuing and increasing its benefits without damage to navigation. Including a statement of the achievements of the members of the Board of Review. (Apply to Board of Trustees, Secretary District of Chicago, 910 South Michigan Avenue, Chicago, Ill.)

A Park and Forestry Policy for Illinois.—Compiled by the Friends of Our Native Landscape. Containing the resolution adopted by the Board of Directors of the organization, and endorsing the park policy for Illinois written by Jens Jensen, landscape architect, the general forestry policy written by Fred W. von Oven, and the state's position in forestry operation, all of which are included in the pamphlet. 21 pp. (Apply to Edison L. Wheeler, Secretary, The Friends of Our Native Landscape, 215 West Huron Street, Chicago, Ill.)

Recreation for Colored Citizens.—Two articles in the January, 1925, issue of The Playground, 315 Fourth Avenue, New York, N. Y. Leisure Time and the Colored Citizen, by Emmett Scott, Secretary-Treasurer, Howard University; 4 pp., illustrated. Recreation for Colored Citizens—Needs and Methods, by T. S. Settle, District Representative, Playground and Recreation Association of America; 4 pp. "The twelve million colored people of the United States. . . . may not safely be ignored in connection with any program of interest to the rest of our country's population." (Apply to The Playground.)

Contracts for Municipal Improvements.—Report of Committee on Contracts of the American Society for Municipal Improvements, 1924. Issued to the members in advance of publication of Proceedings. 17 pp. Presenting a proposed form of general contract for municipal improvements, such as sewers, water pipe, paving and general heavy construction, but not intended to be applied to building or strictly structural work. Including a brief discussion of two of the handicaps to municipal work—in regard to lowest responsible bidder and to the municipal engineering organization.

A Study of Cincinnati's "Amateur Night" Children.—By the Juvenile Protective Association of Cincinnati. Adapted from a study made by Henry Miller, of the staff of the Juvenile Protective Association, under the direction of the Department of Sociology of the University of Cincinnati. 9 pp. in the January, 1925, Bulletin of the Woman's City Club of Cincinnati. Showing the pernicious influence of the "amateur" performances in thwarting the progress of a normal childhood, and recommending measures to abolish it. (Apply to the Woman's City Club of Cincinnati.)

Higher Building in Relation to Town Planning.—By Raymond Unwin [F.]. A paper read before the Royal Institute of British Architects, December 17, 1923, and reprinted from the Journal of the Institute. 26 quarto pp. Illustrated. Including the discussion which followed the delivery of the paper. The author says: "We architects are convinced that congestion will be cured not by increasing the density of the crowd, but by transforming the crowd into an orderly queue. This at least is the alternative we offer to the policy of expansion upwards." (Apply to the author, Wyldes, North End, Hampstead, N. W. 3, England.)

Municipal Reports Received

CHICAGO, ILL.—Annual Report, Department of Public Works, 1923

CHICAGO, ILL.—Annual Report, Municipal Recreation, 1924

DULUTH, MINN.—Annual Report, City Planning Commission, January 1, 1924

GREENWOOD, S. C.—Annual Report, Water and Electric Light Department, 1924.

NEWTON, MASS.—Annual Report, Street Department, 1923

PASADENA, CALIF.—Annual Report. City Manager, year ending June 30, 1924

PHILADELPHIA, PA.—Annual Report, Art Jury, 1923

TACOMA, WASH.—1922-1923 Information Book, Light Department

On the Calendar of Conventions

FEBRUARY 5-6.—MINNEAPOLIS, MINN.
Minnesota Association of Community Secretaries. Annual convention. Secretary, H. F. Dooley, Faribault, Minn.

FEBRUARY 5-7.—ATLANTIC CITY, N. J.
New Jersey Mosquito Extermination Association. Annual convention. Secretary, Thomas J. Headlee, New Brunswick, N. J.

FEBRUARY 6.—NEWARK, N. J.
New Jersey State League of Municipalities. Annual convention. Secretary, Sedley H. Phinney, 34 West State St., Trenton, N. J.

FEBRUARY 10-11.—HARRISBURG, PA.
Pennsylvania State Association of Boroughs. Annual convention. Secretary, J. Herman Kneisely, Capitol Building, Harrisburg, Pa.

FEBRUARY 21-27.—CINCINNATI, OHIO
National Education Association, Department of Superintendence. Annual meeting. Secretary, Dr. S. D. Shankland, 1201 16th Street, N. W.. Washington, D. C.

FEBRUARY 23-24.—TORONTO, ONT.
Conference of the County Road Superintendents of Ontario. Annual conference. Address: S. L. Squire, Deputy Minister of Highways, Department of Public Highways, Toronto, Ont.

FEBUARY 24-27.—CHICAGO. ILL.
American Concrete Institute. Annual meeting. Secretary, Harvey Whipple, 1807 East Grand Boulevard, Detroit, Mich.

APRIL 13.—NEW YORK, N. Y.
National Committee on Prisons and Prison Labor. Annual meeting. Secretary. Julia K. Jaffray, Room 1310, 2 Rector Street, New York, N. Y.

APRIL 20-25.—NEW YORK, N. Y.
National Conference on City Planning. International Town, City and Regional Planning Conference. Secretary, Flavel Shurtleff. 130 East 22nd Street, New York, N. Y.

APRIL 22-24.—CINCINNATI, OHIO
American Society of Civil Engineers. Annual convention. Secretary, George T. Seabury, 33 West 39th Street, New York, N. Y.

APRIL 27.—PINEHURST. N. C.
North Carolina Public Health Association. Annual meeting. Secretary, Dr. F. M. Register, Bureau of Vital Statistics, Raleigh, N. C.

APRIL 27-MAY 2.—LOUISVILLE, KY.
American Water Works Association. Annual convention. Secretary, W. M. Niesley, 170 Broadway, New York, N. Y.

APRIL 28.—WASHINGTON, D. C.
American Civic Association. Pan-American Conference on Capital Cities. Secretary, Harlean James, Union Trust Building, Washington, D. C.

FREDERIC A. DELANO SUCCEEDS J. HORACE McFARLAND AS PRESIDENT OF THE AMERICAN CIVIC ASSOCIATION

After more than twenty years of notable service to the cause of civic progress in America, rendered at no small cost in time and money, J. Horace McFarland has found it necessary, on account of impaired health, to retire from the presidency of the American Civic Association. As Dr. McFarland's successor, the Association has had the good fortune to find Frederic A. Delano willing to accept the office of President. As many readers of this magazine already know, Mr. Delano was, for a number of years, General Manager of the C. B. & Q. Railroad and later President of the Wabash Railroad. He served for six years as a member of the Federal Reserve Board. Mr. Delano has long been interested in city planning. He was one of the group of the Chicago men in the Commercial Club who promoted the Chicago Plan. He is Chairman of the Committee on the Regional Plan of New York and Its Environs. For two years he has been Chairman of the American Civic Association's Committee of 100 on the Federal City. He recently served as Vice-Chairman of the National Conference on Street and Highway Safety called by Secretary Hoover and as Chairman of the subcommittee which prepared the report on City Planning and Zoning.

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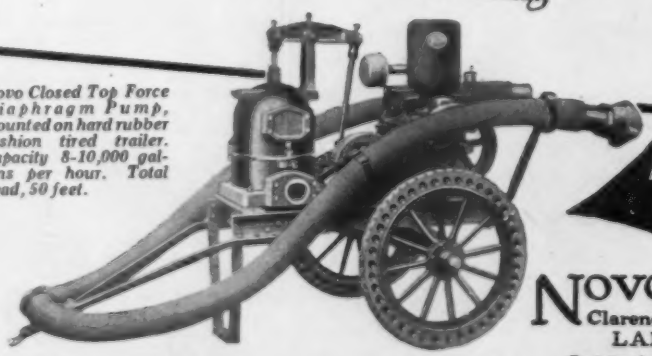

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News and Illustrations

Items of Interest to City, Town and County Officials, and Others Interested in the Economical Construction and Efficient Operation of Public Improvement Undertakings

Steel Traffic Treads for Wooden Bridge Floors

A solution of the difficulty which is constantly being encountered by highway officials and engineers everywhere in combating the wear and tear of modern vehicular traffic on bridge floors is offered by the use of "A. W." diamond-pattern rolled-steel traffic treads which are installed over the lines of concentrated wheel traffic.

The treads are laid directly over the lines of traffic wear on old and worn floors, being fastened thereto by square-head lag-screws. On new bridge floors, the traffic lane is first determined and the treads laid accordingly. It is claimed that the installation of these steel traffic treads, made by the Alan Wood Iron and Steel Company, Widener Building, Philadelphia, Pa., will eliminate vibration and prevent the working-up of nails and spikes from the floor, thus removing a source of constant danger to pneumatic-tired vehicles. It is also evident that the problem of wear and continual replacing of planks is materially overcome. A heavily loaded truck often causes planking to break in half between supports, because the weight is concentrated. These traffic treads obviate this objectionable feature and protect the bridge by distributing the load.

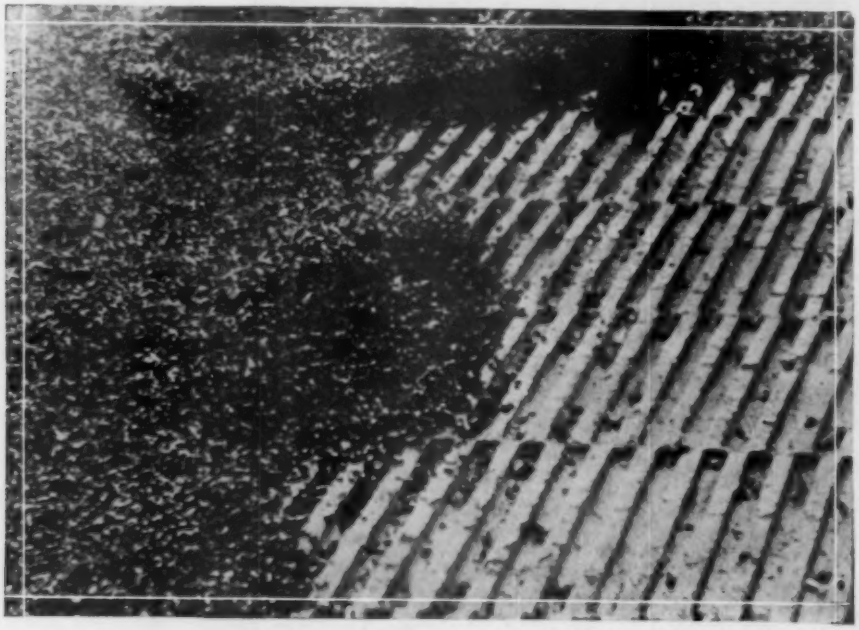
Wooden floor bridges are always subject to the ravages of atmospheric dampness, which enters the wood pores and causes disintegration of the wood fibers in the traffic lane, usually being accompanied by considerable chatter and vibration. Where this has once started, the hard usage of general traffic, particularly the cutting tear of automobile chains, causes rapid destruction of the flooring. Diamond steel traffic treads cover the greatest point of strain and thus protect the floor against disintegration in the traffic lane. An installation of this type on one of the leading bridges entering Atlantic City, N. J., which is subjected to unusually heavy motor traffic, has already trebled the life of the wood floor.

The steel plate is made 3/16-, ¼- or 5/16-inch thick, measured through the body of the plate exclusive of the design, and is from 20 to 30 inches wide, depending on local conditions of the bridge. The plates are 12 to 18 feet long, and are punched approximately every 12 inches along both sides and every 4 inches at both ends. The holes are located in such a manner that the head or the lag-screw falls between the raised diamonds, thereby allowing the head of the lag-screw to bear upon the flat surface of the plate, drawing the plate down to the plank, thus insuring a tight grip. Sufficient space is allowed between the ends of the plates as laid to permit expansion and contraction. The space usually varies from ⅛- to ¼-inch. Before applying the plates, the inequalities occurring in the planking which may fall under the surface of the plate are smoothed off by adzing. The first plates at each end of the bridge are bent down at an angle of 1 in 4, and then further bent to a right angle, thence extending down into the road-bed at least 6 inches. If possible, the plates should be fastened to the bridge structure itself at these points. It is advisable before applying the plates to coat the surface which will come under the plate with liquid asphalt, preferably applied hot.

Many Cities Buy Snow Loaders

The appreciation of the value of mechanical means for loading snow from city streets into trucks and wagons is shown by the announcement of the Barber-Greene Company, Aurora, Ill., that Rochester, N. Y., Utica, N. Y., Worcester, Mass., White Plains, N. Y., Kingston, N. Y., Troy, N. Y., Quincy, Mass., Camden, N. J., Newark, N. J., and Buffalo, N. Y., have just recently purchased Barber-Greene snow loaders for this work.

THE HAVRE DE GRACE-PERRYVILLE BRIDGE OVER THE SUSQUEHANNA RIVER, PROTECTED WITH STEEL TREADS TO SAVE THE WOOD FLOORING



Close-up showing bituminous mixture filling corrugations in Vibrolithic Concrete Base.

THE Vibrolithic METHOD

Applied to Bituminous Pavements

Insures a cement concrete base of extreme density and increased load-bearing capacity, plus a corrugated surface that "keys" all types of bituminous wearing course pavements, putting an end to creeping and waving.

The Vibrolithic Method mechanically produces a series of uniform concrete ridges and depressions. The depressions measure the amount of compaction of the plastic concrete. The tops of the ridges are at the original elevation of base as struck.

Vibrating machines, transmitting to the plastic concrete under extreme pressure 1500 impulses per minute, remove entrapped air and excess water, forming the corrugated surface in the same operation.

The Vibrolithic Method produces cement concrete bases with the lowest absorption known.

It gives higher beam strength of slab, hence greater resistance to contraction, expansion and impact. It is perfectly adapted to modern paving requirements, covering large areas.

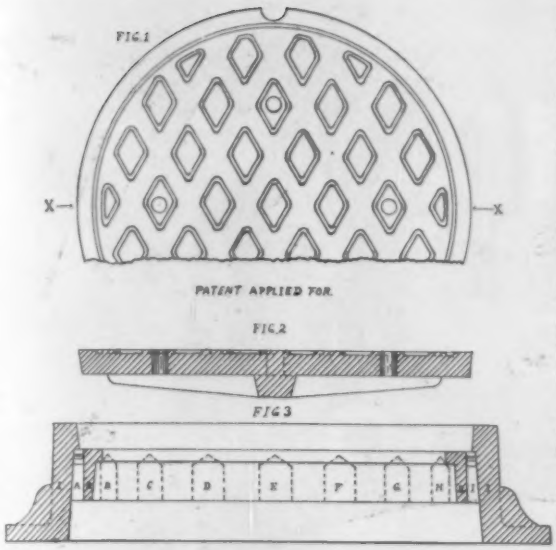
It creates a mechanical bond for the bituminous wearing surface and base, safely permitting the elimination of binder courses.

It restores bituminous pavements to practical and economical use for streets and highways.

The Vibrolithic Method is recognized by highway and municipal engineers throughout the United States as a standard mechanical method. It does not introduce new materials, delay the work or make costly demands on the contractor.

Write for illustrated Base Booklet A

American Vibrolithic Corporation
INSURANCE EXCHANGE BUILDING DES MOINES, IOWA
SALES OFFICES IN 16 OTHER CITIES



A SELF-DRAINING, NON-RATTLING MANHOLE COVER AND CASTING

A New Type of Manhole Cover and Ring

Practically all manhole covers in use to-day have no ring for holding the cover, spaced apart from the body ring, as the ring which supports the lid is usually cast integral with the main body. Because of this, dirt which drops in between the lid and the body ring is liable to wedge the cover. Also, it is frequently the case that the covers rock and rattle, and they often break. In winter, water runs down and across the face of the ring, between it and the lid, and when it freezes makes the lid very difficult to lift.

The cover and ring or lid illustrated above, manufactured by the Anderson Steam Vulcanizer Company, 611 North Capitol Avenue, Indianapolis, Ind., has an open space between the ring which supports the lid and the manhole casting. Any dirt which makes its way between the cover of the manhole castings is free to work its way through the opening into the manhole, so that it does not wedge the cover at any time. Also, when the lid is dropped down onto the top of the ring numbered 2 in the illustration, it does not rattle, and water is free to drain through, thus preventing freezing around the edge of the cover.

This type of cover has been in use in Indianapolis since September, 1922, and has been approved by the Engineer and Board of Public Works.

Draney to Market Asphalt Products

J. R. Draney, formerly General Sales Manager of the U. S. Asphalt Refining Company, New York City, has announced that he has established himself to market asphalt and allied products, including Bitoslag, Kolmend and Surfacrete. His address will be 90 West Street, New York City.

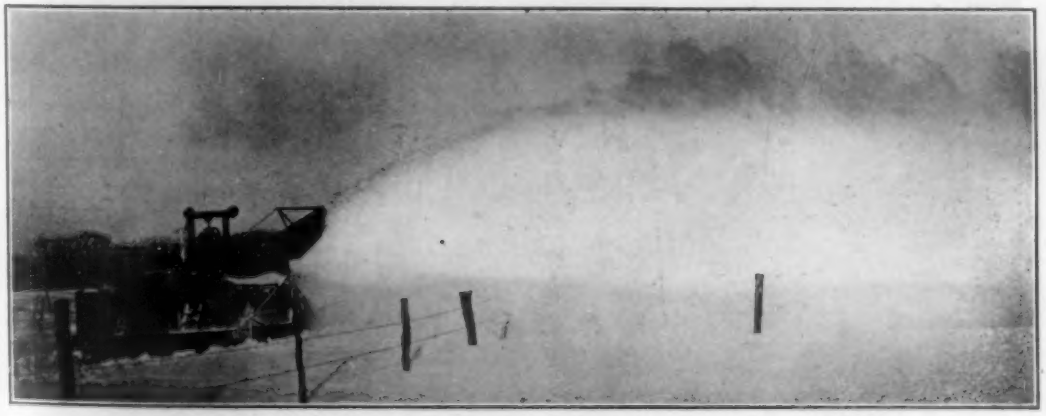
Rose Now with American Creosote Works

The American Creosote Works, New Orleans, La., has announced that Stanley H. Rose, who for the last eight and a half years held the position of Foreign Sales Manager of the Barber-Asphalt Company, Philadelphia, Pa., has become associated with it in the capacity of Eastern Sales Manager of its Creosote Oil Department. In addition to this, Mr. Rose will act as General Sales Agent of the Savannah Creosoting Company, Savannah, Ga., in the sale of creosoted lumber, poles, piles, railroad ties and timber. After February 1, he will make his headquarters at the office of the American Creosote Works, Annapolis, Md.

A New Model Rotary Snow-Plow

The C. D. Edwards Manufacturing Company, Albert Lea, Minn., has brought out a 1925 Model rotary snow-plow. This plow is built around the Holt tractor, instead of being constructed simply as a separate unit to be pushed by the tractor. The plow has two rotors, 6 feet in diameter, which are propelled by a 6-cylinder, 100-horse-power motor that is a separate power-plant from the motor that propels the tractor.

The rotors are mounted on full-floating hubs using 8½-inch Timken bearings. All moving parts in the plow are mounted on either Timken, Hyatt or New Departure bearings.



A ROTARY PLOW THROWING SNOW FROM ROADWAY TO ADJACENT FIELD

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Traffic Lights

ESSCO MFG. CO.

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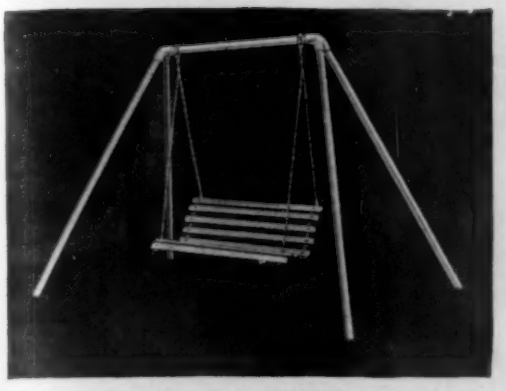

A NEW PARK SWING

A Ball-Bearing Park Swing

A hardwood park swing with ball-bearing swing hangers, malleable iron fittings and a well-braced and substantially built frame of 2-inch galvanized iron pipe, has been brought out by the Hill-Standard Company, Anderson, Ind. The galvanized iron frame is to be imbedded in concrete and stands 8 feet high, requiring a ground space of about 11 x 12 feet. The seat of the swing is made of hardwood and heavy iron, so that it should give many years of satisfactory service.

These swings are particularly adapted to installation in corners of playgrounds or in wooded recreation areas where comfortable, substantial units may be installed separately.

A New 5-Ton 4-Cylinder Gasoline Road Roller

Another well-designed gasoline road roller using the Fordson power-plant has been placed on the market for highway departments and contractors. This Pony roller, made by the Acme Road Machinery Company, Frankfort, N. Y., makes a one-man job of maintenance work and replaces several men, teams and different pieces of equipment with a single piece of machinery. The machine with its planer attachment in front and scarifier attachment at the rear, as well as its three rollers, is adaptable for scarifying, leveling and rolling old roads and in the preparation of subgrade on new construction, as well as for compacting embankments. Several contractors have found this machine better adapted than the tandem roller for cross-rolling asphalt pavements because, they claim, it is very difficult to get an experienced operator who can cross-roll successfully with a tandem roller, while with this three-wheel machine there is no trouble in keeping a perfect balance.

THE ACME GASOLINE ROAD ROLLER

The Acme Pony roller consists of a heavy steel frame which takes all the strain and carries all the attachments. The Fordson power-plant is simply mounted on the unit to furnish the power. It is possible for two men in two hours to remove the Fordson unit in case it is needed in other work. All the controls for the roller and the attachments are within easy reach of the operator. The rear wheels have a special device for quickly locking both rolls, thus making it possible to stop the machine and prevent such accidents as have occurred to flagmen going ahead of steam rollers.

The planer attachment, which is carried by the frame and individually controlled by the operator, can be adjusted to any desired position. Material can be scraped from right to left or from left to right, or the planer can be set at an angle for trimming shoulders, and, by use of an extension, the blade may be made to reach the toe of the slope for cleaning ditches. Another adjustment permits it to be tilted for cutting or leveling. The scarifier attachment, which automatically operates at the proper angle, is forced into the pavement by heavy springs. The standard equipment includes a set of scrapers for the road, a complete set of picks for the rear wheels, the brakes, and scarifier attachments.

A Portable Oil-Burning Asphalt and Pitch Heater

A new asphalt and pitch heater making use of an oil flame for melting and heating the material has been brought out by the Mohawk Asphalt Heater Company, Scotia, N. Y. The cold lump material is placed on a sloping shelf above the tube through which the burner flame is projected. The melted material drops down into the supply tank as soon as melted, and is maintained at high temperature by the flue gases, which pass under the sloping oven, then downward under the supply tank and up to the flue end of the heater. The partition which separates the cold material and the hot is removable for cleaning, repairing or renewing. A draw-off valve at the bottom of the tank makes it possible to quickly draw off the hot material for use.

The 50-gallon "Hotstuf" heater has an approximate melting capacity of 5,600 pounds of asphalt in 8 hours, or 7,000 pounds of coal tar pitch in the same time. The fuel consumption is approximately one gallon of kerosene per hour, and the storage capacity of the heater is one barrel of cold material. This heater when mounted on legs is 26 inches wide and 36 inches long. Mounted on wheels, it is 36 inches wide and 72 inches long. The approximate shipping weight on legs is 350 pounds complete, and on wheels 500 pounds complete. The 100-gallon heater, which has a melting capacity of 8,000 pounds of asphalt in 8 hours, and 10,000 pounds of coal tar pitch, consumes 1½ gallons of kerosene per hour and has a storage capacity of 2 barrels of cold material. The heater is mounted only on wheels and has a heater width of 36 inches, a length of 50 inches,

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Newark, New Jersey

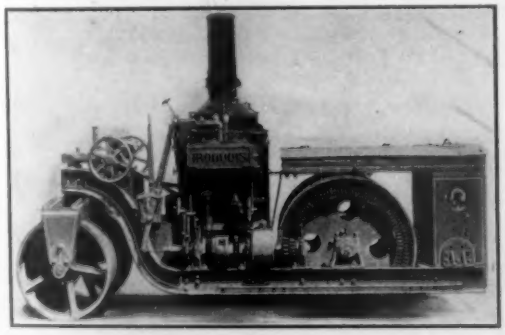
A PORTABLE HEATER

an over-all width of 51 inches, and an over-all length of 89 inches. The approximate shipping weight is 750 pounds complete.

This heater is particularly adaptable to street and highway work, and because of the special elevated melting chamber the hot material is produced immediately at proper working temperature, saving several hours of waiting.

Tandem and Macadam Rollers

Tandem rollers, equipped with vertical boilers, which are said to have fewer working parts than any other tandem roller, are made by the Iroquois Works of the Barber Asphalt Company, Land Title Building, Philadelphia, Pa. These rollers have double cylinders and reversible slide-valve engines which rest on a frame made of heavy section steel channels. The engine has slow speed and high power, eliminating the need of a governor. Reverse may be secured by a lever within easy reach of the operator, and is

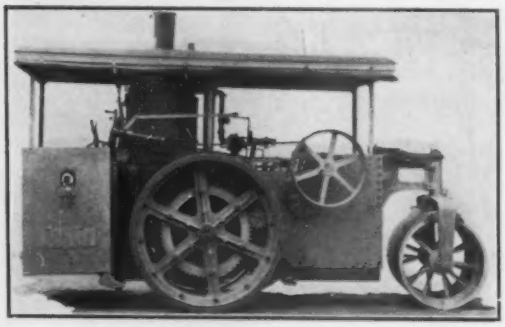


AN IROQUOIS TANDEM ROLLER

instantaneous in action, which is of particular value when engaged in such operations as rolling or cross-rolling sheet asphalt pavements.

The tandem roller is bevel-gear driven, which is said to give less vibration than spur gears. The steering quadrant saddle, king post, water-tank and other parts are made of selected and inspected materials. Hand steering-wheels within easy reach of the operator are one of the features of Iroquois tandem rollers. A power steering device, which allows the steering-roll to be turned in either direction with the roller operating forward or backward, is standard equipment on all rollers weighing five tons and over. These rollers are furnished in 2½-ton, 5-ton and 8-ton sizes.

A noteworthy change in macadam roller design is the 12-ton vertical boiler Iroquois macadam roller made by the Barber Asphalt Company. This powerful roller is built in separate units, each supporting no weight but its own, which eliminates the rack and strain of the boiler. Repairs or replacements of any parts can be made without tearing down the entire roller. An improved scarifier, located under the operating platform at the rear, is operated by two steam cylinders, and is so constructed that it will scarify under all conditions. The scarifier will penetrate from 4 to 7 inches over the entire width of the roller. When not in use the scarifier is lifted automatically to a position under the platform



A 12-TON MACADAM ROLLER

where it is out of the way. The spikes are easily removed from the rear wheels and the roller can be used for asphaltic and bituminous concrete pavement work when desired.

The vertical boiler of the macadam roller provides increased heating surface and greater steam pressure, which with larger engine cylinders is said to give the Iroquois roller 50 per cent more starting torque than any other 12-ton roller.

Rosing with Armco

The Armco Culvert & Flume Manufacturers Association, Middletown, Ohio, has announced that Anton S. Rosing, formerly Assistant Manager of the Advertising and Publications Bureau of the Portland Cement Association, 111 West Washington Street, Chicago, Ill., has been appointed Publicity Manager of the Armco Culvert and Flume Manufacturers Association, Middletown, Ohio, in charge of advertising, publications and other publicity work. Mr. Rosing is a civil engineer, a graduate of the University of Michigan and a member of the Western Society of Engineers. Previous to joining the staff of the Portland Cement Association, he was engaged in active construction work, principally railroad construction, and for two years was Assistant Professor of Civil Engineering at the Michigan Agricultural College, Lansing, Mich.

Ellis Leaves Niagara Company

The Niagara Alkali Company, and the Electro Bleaching Gas Company, Niagara Falls, N. Y., and 9 East 41st Street, New York City, have announced that George R. Ellis, Manager of Sales, in the Specialty Department of the Niagara Alkali Company, has tendered his resignation to take effect March 1.

For CONCRETE CURING

CALCIUM CHLORIDE

THE OLD laborious and expensive method of curing concrete by ponding or by blanketing with dirt and straw and sprinkling with water is entirely done away with by the up-to-date Calcium Chloride method of concrete curing.

Solvay free-running Calcium Chloride is applied direct to the bare concrete, and requires no further attention, no sprinkling, no dirt, no straw. Roads are ready for service in as little as 10 days' time. Ordinary laborers with hand shovels do the work quickly and efficiently.

The proper amount of moisture is automatically and chemically maintained and this relieves the engineer of the responsibility of inspecting for proper sprinkling each day; the contractor also is benefited because results are certain, quick O. K'ing of the road is assured and his money comes in so much sooner. The Solvay method is the right way for all; saves time, money, labor,—gives the community its road sooner and assures long wearing concrete.

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Free Running
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Used on the Ideal Section of the Lincoln Highway and endorsed by leading engineers in every state in which it has been used. Shipped in 375 lb. non-returnable drums or easy to handle 100-lb. moisture proof bags from fifty convenient distribution points in the United States.

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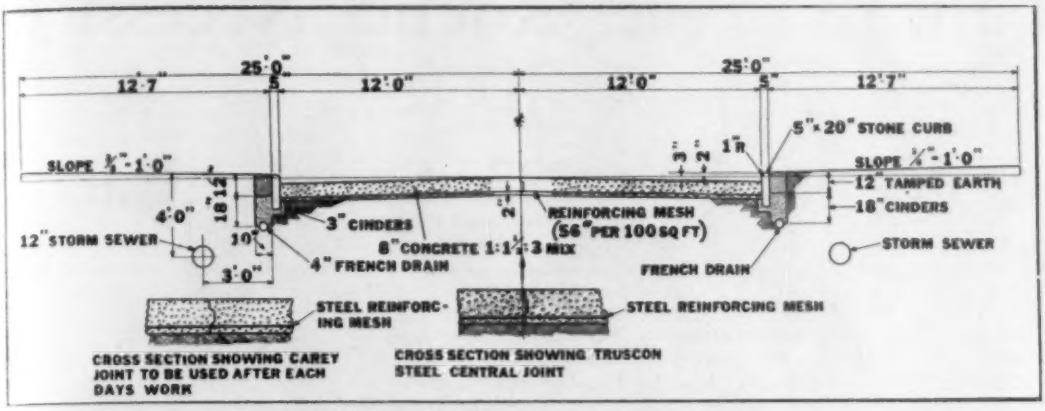

CROSS-SECTION OF MONOLITHIC CONCRETE PAVEMENT WITH STONE CURB

Mechanical Tamper Used on City Concrete Streets

In the Good Times Program of concrete street construction undertaken by Bedford, Ohio, near Cleveland, the concrete is spread and tamped mechanically. A cross-section of the pavement is shown below. On some of the construction the concrete curb is placed instead of the stone curb, but in any event the finishing machine for spreading and tamping must travel on the curb instead of the steel side forms used for rails on ordinary highway construction. Steel plates bent to an angle shape are laid along the top of the curb to protect it. Four such plates, each about 10 feet long, were used on each side of the pavement. These are taken up and relaid as the machine advances.

The strike-off and tamper of the finishing machine were fitted with extensions, so that they would operate at the required distance below the tops of the curb. It was not possible to use the regular finishing belt of the machine, because the curbs did not allow clearance for it. The final floating of the surface was done with a wood float extending the full width of the pavement and provided with plow handles on each end. After this Lakewood mechanical finisher, made by the Lakewood Engineering Company, Cleveland, Ohio, had spread and tamped the slabs, one or two trips over with the wood float completed the job. The result is a slab of greater density because of the tamping it receives, which drives out air and water voids, with a smoother riding surface than can usually be obtained by hand methods. B. T. Wright, Village Engineer, is in charge of the work.

P & H Changes Name

The Pawling & Harnischfeger Company, Milwaukee, Wis., has announced a change in the name of the organization to Harnischfeger Corporation. This change of name is not accompanied by any change of management, organization or business policy.

New Holt Distributors

The Holt Manufacturing Company, Peoria, Ill., has announced the appointment of the Brockway Motor Truck Company, Utica, N. Y., as its distributors for "Caterpillar" tractors in central and northwestern New York State. Complete stocks of 2-ton, 5-ton and 10-ton "Caterpillar" tractors, as well as service parts, will be carried in Utica, and a corps of experienced service operators will be available.

LAKEWOOD FINISHING MACHINE RUNNING ON BENT PLATES LAID ON CURB

Now A Year 'Round Necessity

KEEP ROADS UP AND TAXES DOWN WITH
DOWFLAKE
CALCIUM CHLORIDE

Order Your 1925 Supply Early

MANY road men, contractors and municipal officials tell us when placing their yearly requirements that they order early to insure regular supplies because DOWFLAKE has come to be a year 'round necessity. It does so many things well that were done awkwardly and at great cost before. And it does many things that were never done before.

DOWFLAKE Keeps Down Dust by keeping road surfaces moist and firmly bound. Some states use it on entire trunk line highway systems of gravel and stone roads. They say it is the only way to prevent dry gravel from being blown or thrown off the road. They say it reduces maintenance costs and makes roads last twice as long.

DOWFLAKE has solved the pavement curing problem. By a simple one-man job it provides necessary moisture for a complete cure yet does away with costly pumping, earth covering, ponding, scraping and inspection. It does the work better at a fraction of the cost. It saves thousands of contractors and municipalities.

DOWFLAKE also has a nation-wide use for pavement and gravel road patching. Highway workers say there's nothing like it. Road men in some sections use it for ice removal on hills, slippery corners and icy walks. It has wide use for maintenance and dust prevention on park drives, playgrounds, tennis courts, fairgrounds, etc.

Here is a general purpose product that ought to be on hand all the time. 1925 already shows a greatly increased demand. Protect yourself against delayed shipments in the rush season by making arrangements now. Write for your copy of the revised editions of our book "How to Maintain Roads" and "How to Cure Concrete."

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Two Useful Books on Roads and Their Maintenance

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A Safety Cast Iron Manhole Top

Safety and economy should be the features of any manhole top that is to be practically a permanent installation on any city street. The new "Safety Manhole Cover" which has been developed by the Sanitary Sewer Basin Company of Illinois, 549 West Washington Boulevard, Chicago, Ill., has several interesting features. Among them are —it is adjustable to the wear of the street, and it can be locked. When streets are paved or resurfaced, it is not necessary to remove this manhole cover. The adjustable feature, which consists of wedges cast into the ring and the baseplate, and round teeth which fit into each other

AN ADJUSTABLE CATCH-BASIN TOP WITH LOCK COVER

to prevent the cover from sliding, permits lowering and raising the cover to meet the grade. The locking feature prevents tampering by unauthorized persons, and the adjustable feature permits traffic to pass over it smoothly and quietly with no danger of cover tipping, and thereby eliminates damage suits.

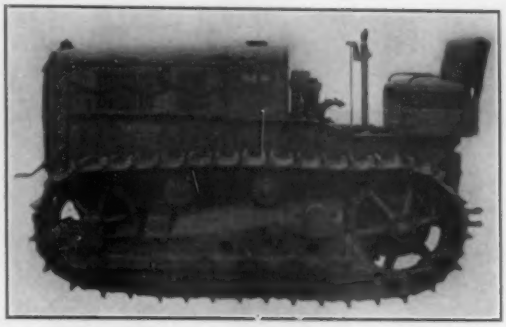
Enormous sums are spent by cities for sewer works, and the use of a manhole cover that locks prevents unauthorized persons from throwing refuse into the sewer and stopping it up. Regardless of the number and size of damage suits, which in some cities run into large figures, the important feature of protecting human life is sufficient reason for a locking cover.

A New 5-Ton Tractor

A new 5-ton "Caterpillar" tractor has recently been announced by The Holt Manufacturing Company, Peoria, Ill. The new model, which was displayed at the Road Show, embodies many new and distinctive features tending toward greater accessibility, dependability and economy. The outstanding feature of the design is unit construction. Three units, the engine, transmission and track, form the complete tractor.

The motor is a 4-cylinder, valve-in-head type with a 4¾-inch bore and a 6-inch stroke, operating at 1,000 r.p.m. It has a gear-driven fan and water pump and full force feed lubrication. Large side plates provide for bearing inspection and adjustment.

The transmission is the selective gear type with



A NEW 5-TON "CATERPILLAR" TRACTOR

three speeds forward and one reverse. The forward speeds are 1.75, 3, and 4.25 miles per hour, and the reverse 2 miles per hour. In each speed power is applied to the sprocket with but three gear contacts. All shafts are mounted on heavy-duty ball and roller bearings. Steering clutches provide independent, yet positive, drive to each track. No differential is employed.

The entire weight of the tractor is carried on the roller frame through 3-point spring-mounted suspension. The truck frame incorporates marked simplicity in design, yet permits operation of each side to accommodate itself to the inequality of ground surface. A new and unique feature is the drive link and spring construction which permits the centers of the drive sprackets and track idler to approach each other so that the drive sprocket can slip over the space blocks, should an obstruction gain access to the track unit. The track shoes and rails are cast integral of high carbon steel, specially heat-treated. The track shoes are 12 inches wide.

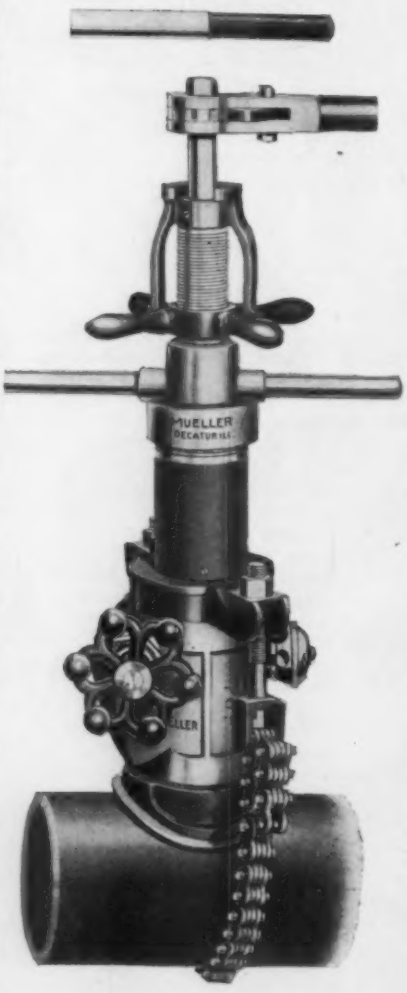
While this new model, which has been designed particularly for use in the medium power field, is rated at 25 draw-bar horse-power, the manufacturers claim it has a substantial reserve for all conditions. Its size makes it suited for township, municipal and special road districts, having ample power for average road grading, with flexibility, speed and economy for maintenance and patrol operations, as well as for contracting work.

Jackson Opens Consulting Offices in New Haven

J. Frederick Jackson, formerly Director of the Bureau of Sanitary Engineering, Connecticut State Department of Health, and Chief Engineer of the Industrial Wastes Board, has announced that he is no longer connected with the State Department of Health, and will devote his entire time to consultation on matters relating to water-supplies, sewerage, sewage and garbage disposal and general sanitation, with offices in the Chamber of Commerce Building, 185 Church Street, New Haven, Conn.

Hill Consulting Engineer for New Water-Supply for Albany

Nicholas S. Hill, Jr., 112 East 19th Street, New York City, has been retained by the city of Albany, N. Y., as engineer in charge of surveys and construction of the new water-supply for that city.



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Tapping Machine Nº "A"

More than Sixty Years' Experience

The Mueller Tapping Machine illustrated here is backed by sixty-eight years of knowing how.

It helps to reduce operating costs. Brings tapping cost and time down to the minimum.

It is therefore a factor in increasing dividends.

MUELLER

Tapping Machine No. "A"

will tap water mains and insert corporation stops from 1-in. to 2-in. in size, in pipe under pressure. Other models of Mueller Tapping Machines specially designed for different conditions. More than 90% of all tapping machines in use today are Mueller made. Write for complete descriptions and prices.

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FOUR-LIGHT TRAFFIC CONTROL STANCHION

Traffic Control Devices

A complete line of traffic control appliances both automatically and manually controlled is made by the Horni Signal Manufacturing Corporation, of Newark, N. J. The various types mentioned below and other special units are available to cover all traffic conditions. The signal units are made of cast aluminum, and assembled with brass screws, neither of which metals is affected by weather or corrosive agencies.

The multi-angle stanchion has a separate adjustable section for each approaching thorofare. These sections have three vertical compartments, in the upper a red, in the middle a yellow, and in the lower a green lense. The lenses are made by the Horni Corporation, and are specially designed, and fully covered by patents owned exclusively by the Corporation. These lenses may be viewed without glare for a great distance, either in the daylight or at night. Traffic is controlled by showing the green lights along one thorofare allowing a movement, and the red lights along the others holding the cars. In shifting from red to green or vice versa, change is indicated by yellow lights showing in all directions. In addition, during the existence of the yellow lights a gong, usually placed on a pole at a corner of the intersection, rings. This gong is an 8-inch vibrating weatherproof bronze type. The face of the stanchion is of boiler plate filled with concrete. Below the signal unit proper is an inverted bowl containing three lamps. These lamps illuminate the base of the stanchion and, together with the globe-enclosed light on top, serve to convert the stanchion into a beacon when the regular traffic control lights have been discontinued for the night.

The suspended multi-angle type has a unit similar to that in the stanchion. These signals are suspended from messengers, mast-arms or brackets, and have both horizontal and vertical adjustments.

The three-light, four-way stanchions in suspension types have a single casting with three vertical compartments, and lenses on all four sides of each compartment. In the top and bottom compartments are two red, and two green lenses; in the center compartment are four yellow lenses. In the four-light, four-way stanchion and suspension signals there is an additional compartment with red lenses on all four sides. When these lenses are illuminated, traffic is halted in all directions.

The sidewalk traffic control standard consists of an ornamental pole 7½ feet high, with the signal unit at its top, facing in three directions.

The three-light section traffic signal may be erected as a standard in a vertical position at the center of an intersection, attached to a post at the curb or suspended in a vertical position as an overhead signal. The lenses used in this type are of a design to meet varied conditions.

The bracket type traffic light has three compartments, showing the direction of traffic both ways on the avenue, and with corresponding lenses in the bottom to serve as a guide to pedestrians. This light is designed to be suspended from a cable of mast-arm in a horizontal position with the lenses arranged so that the beam of light is adjustable to meet varied grade situations.

In the highway warning indicating signals the lights are constructed as guides to traffic, indicating various road conditions, such as dangerous curves and bad hills. These lights may be used on a multiple or series circuit of either high or low tension lines.

The street guide lights are generally used for the guidance of vehicles, indicating directions of traffic, entrances or exits of one-way thorofares, or other information necessary to facilitate traffic. These are connected to the house lighting current or other low-tension circuits.

The park type lamp is constructed of bright aluminum, similar to the other indicators, and is placed on a stanchion with any insignia desirable on it. It is controlled from any alternating or direct-current line.

A master control station, built of aluminum and containing a master control, switch, service switch and meter, is to be placed on the sidewalk, or in a tower, to enable the officer in charge to most intelligently direct traffic in any direction, and for any distance or location, whether within his vision or not, by the operating of the signal switch. This master control switch is of the rotary type.

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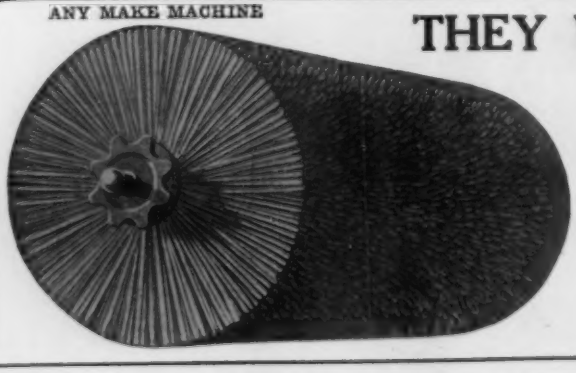

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